Keyboard Magazine

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STAGE SKILLS · STUDIO SMARTS

NORAH JONES

ON CRAFTING HER BOLD NEW SOUND

HEAR STEVE DUDA ON ELECTRONIC MUSIC

PLAY LATIN CLAVE POWER WARM-UPS

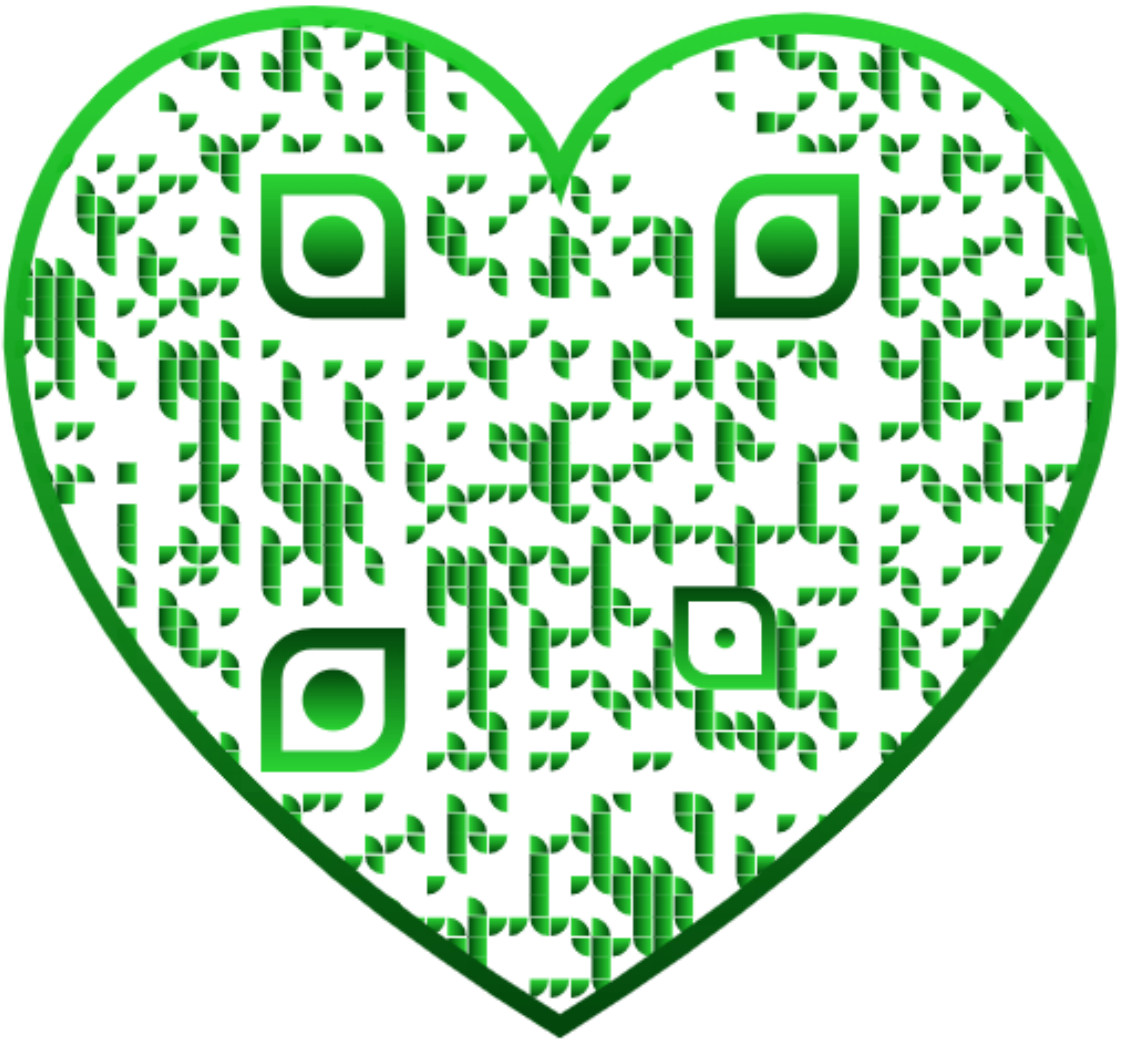
KNOW TOP SHOPS FOR GEAR
ACOUSTIC PIANO PICKUPS

REVIEW CASIO XW-P1
DIGITAL ROOM CORRECTION

NewBay Media
06.2012
A MUSIC PLAYER PUBLICATION

NORAH JONES | CASIO XW-P1 | ROOM CORRECTION | PIANO PICKUPS | TOP SHOPS | CLAVE LESSON | BLADE

JUNE 2012



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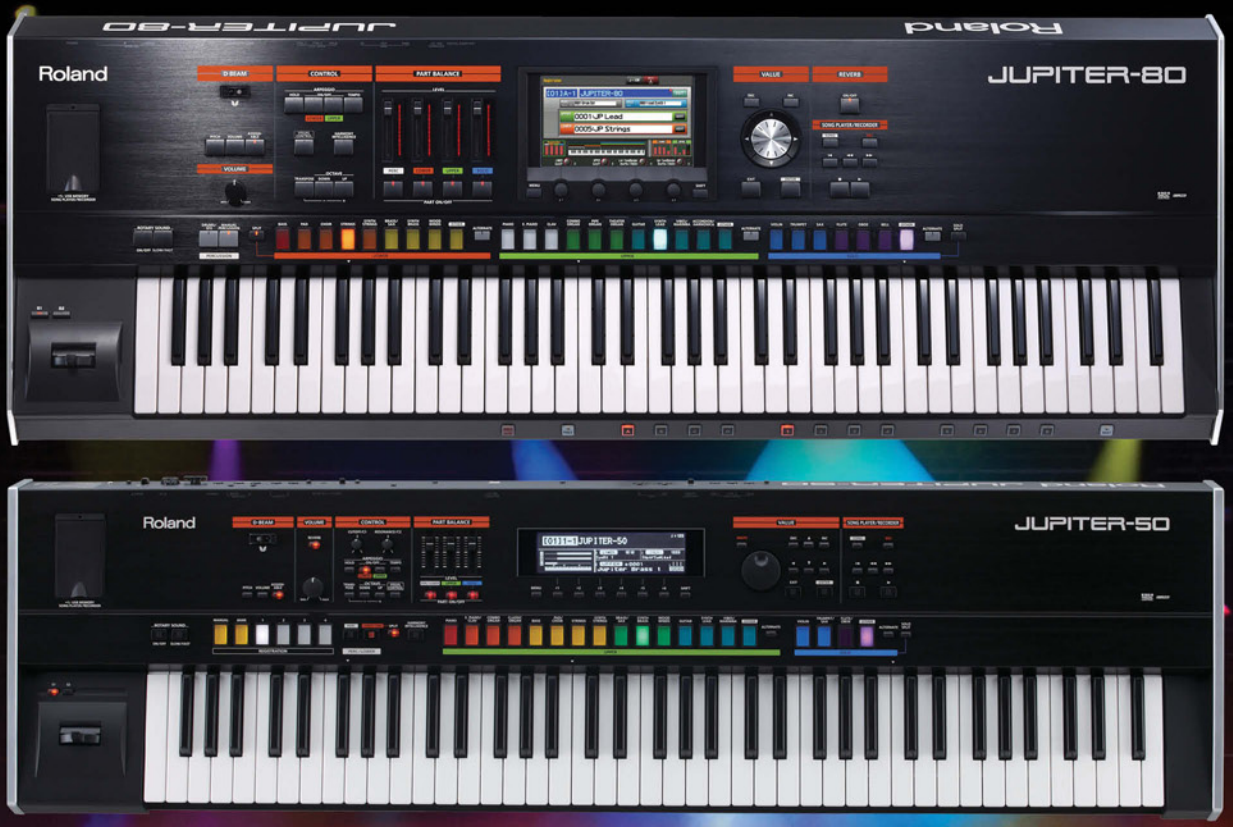

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DANGER MOUSE & NORAH JONES—NOAH ABRAMS

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~ Chick Corea

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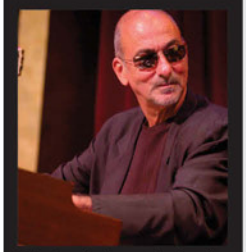
~ Terry Lawless
(Keyboardist & programmer - U2)



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~ Tom Coster
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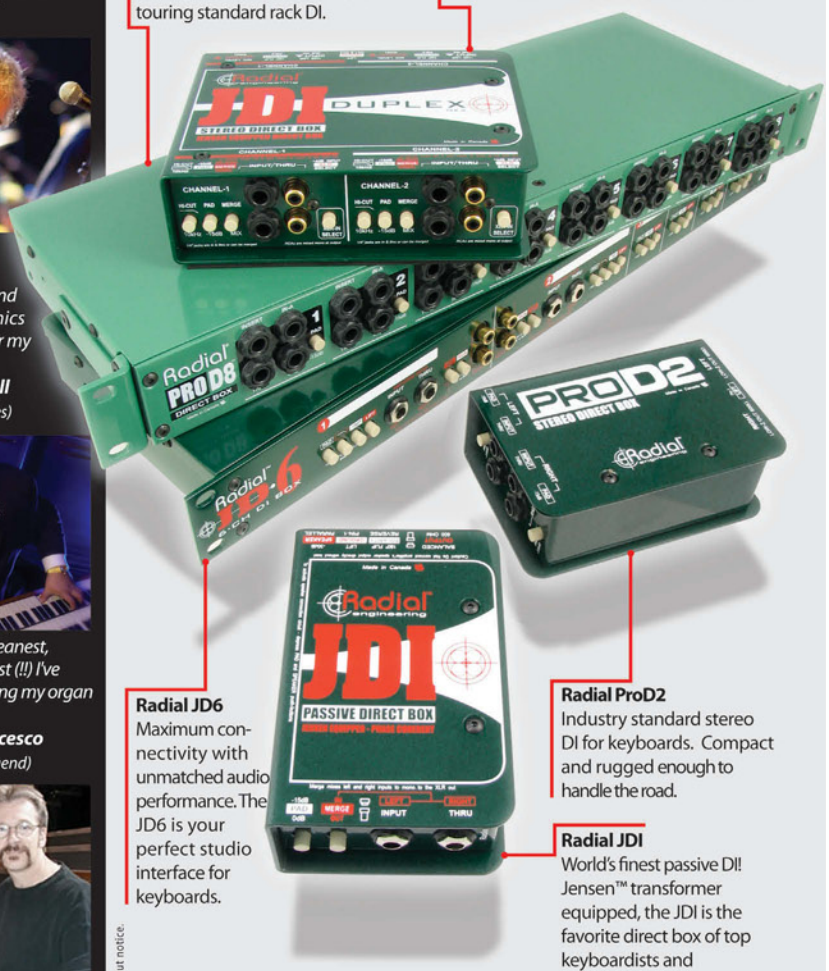

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Radial passive DI boxes deliver the wide frequency response and headroom needed to properly handle today's ultra dynamic digital keyboards. The magic is in the transformers we use... unlike active DIs that square wave when hit hard, our high performance transformers naturally round out the tone, introducing a natural compression that is often described as vintage sounding. And with isolation, you immediately eliminate hum and buzz caused by ground loops. Plenty of great models to choose from for mono, stereo and full scale touring rigs.

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Editor's Note

Some of you have asked about the giant keyboard in my usual editor's letter pic. This one happens to be part of a mural in Oakland, California—I was driving down 17th Street one day and simply thought it looked cool—but I've been drawn to keyboard-themed public art for a long time. At right is another from Jamaica Station, an inevitable node in any train ride to or from New York's JFK Airport. From Anthony Wellington's Facebook page, the middle pic is in Reading, Pennsylvania. Of course, Tom Hanks immortalized the F.A.O. Schwarz musical floor in *Big*. Keyboards definitely look cooler on large structures than they ever did on ties or scarves, and I'm curious about how many of them are out there. Send in pics from your area, or post them on our Facebook page, and maybe we'll start the next big meme—planking or Tebowing optional.

In the corrections department (a.k.a. clam jail), last month we alluded to a review of the new MuseBox in this issue. It's a lot deeper than we anticipated so we're still working on it. In magazine land, it's a jinx to tie a forward-looking statement to a firm date, and I should darn well know better. So for these next teasers about artist features I'm ecstatic we've finally nailed down, I'll keep it to "soon." Legendary sideman Greg Phillinganes. Organ renaissance man Cameron Carpenter. Gotye—every keyboardist should see his video "State of the Art." Stay tuned!

Stephen Fortner

Stephen Fortner
Editor

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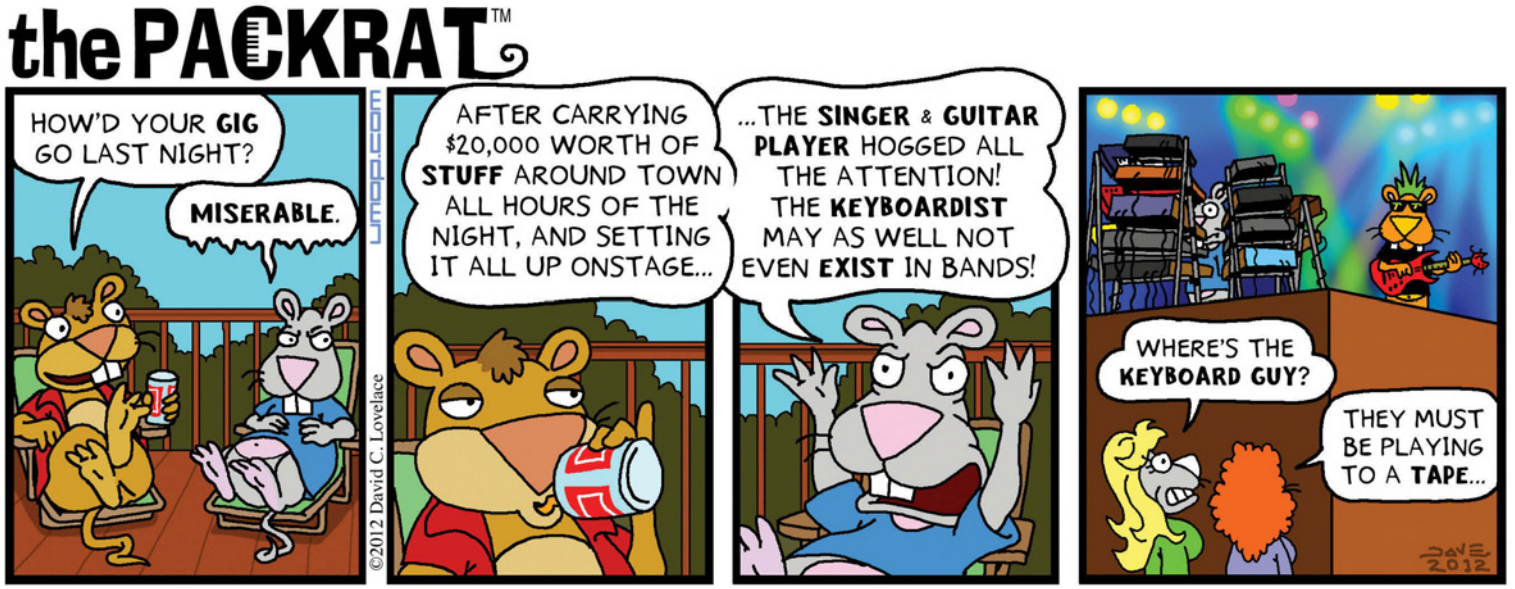
JIMMY AND DENA KATZ

My First *Piano Teacher*

Maria Schneider

"Music irreversibly grabbed me at age five when a redheaded eccentric named Evelyn Butler came to our house for dinner and laid hands on our little Baldwin Acrosonic piano," recalls Grammy-winning composer Maria Schneider. "She was far too much pianist for Windom, Minnesota, but a personal tragedy had caused her to move to our tiny town, where her daughter lived." That first exposure sparked a chain reaction. "Our first lesson was playing a major triad and singing the words 'bright the day' to the notes, then singing 'dark the night,' to a minor triad," she describes. "She taught me that emotion in music is tied to properties explained by theory. She taught me to play stride and classical, analyzing every chord of every composition, and encouraged me to write. She was an angel who brought music to my life via the piano." | **mariaschneider.com** | Michael Gallant



No Golden Ticket Required

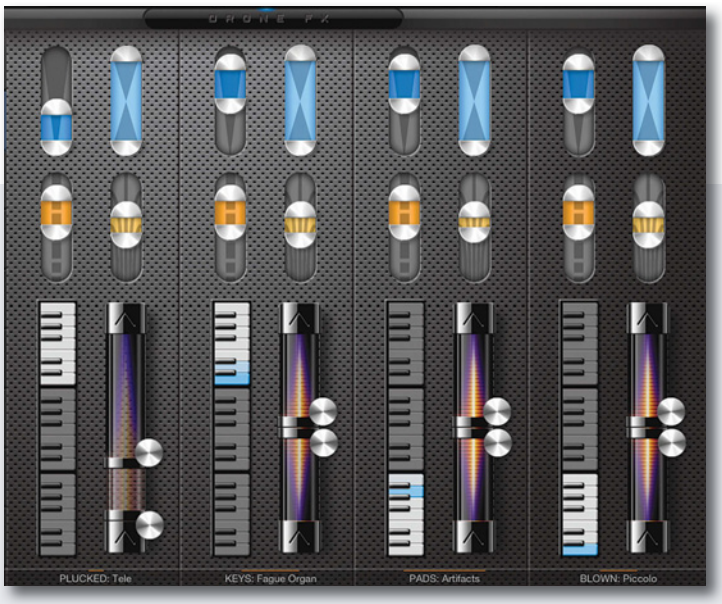
Many musicians think of **Sweetwater** as an excellent online store, but they also have a sprawling, immersive brick-and-mortar campus. Visit in person, and a top-hatted Chuck Surack pilots you on a boat ride down a river of chocolate as Oompa Loompas sing about the dangers of not having a separate hard drive for audio. Okay, that doesn't actually happen. But **GearFest** does, and it's even better—the nation's largest music gear expo that's also free (!) and open to the public. On **June 22-23**, more than 200 manufacturers will let you get your hands on tons of keyboards, mixers, DAWs, soft synths, audio interfaces, control surfaces, and everything else—and you can talk directly to product designers and manufacturer reps to get firsthand info. Two full days of seminars, workshops, and performances include Thomas Dolby, George Massenburg, Craig Anderton, Mitch Gallagher, Paul Reed Smith, and dozens more. Plus, engineer/producer Fab Dupont will hold two amazing sessions where he records, mixes, and masters a live band in real time. Head to **sweetwater.com/gearfest** for hotel and travel info, up-to-the minute additions to the program, and to pre-register.

Electronic composer BT (center) greets visitors at 2011's GearFest. This year's lineup includes Thomas Dolby and super-engineer George Massenburg.

Key Secrets

Play it Safe . . . and Scary

It's fun to show off gear at jam sessions, but the more you bring, the less you play. My setup is now so streamlined I can start making music while the rest of the band is still loading in. I use an iPad as a sound module, a USB keyboard controller to play it, and a Korg Kaossilator Pro for leads. To keep things fresh, I spin the Kaossilator's Program knob to a random sound or launch a newly downloaded app. Drone FX (pictured) delighted us all with its random, spooky sounds. Mixing the familiar with the unknown can be powerfully creative. David Battino



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LMK2+
ARP AXE
YAMAHA
Whammy
Roland
JP-800

No Words

Well, just a few: You're looking at the showroom of New Jersey shop **Three Wave Music**, which has multiple units of everything you never won on eBay. We think this may be where the Packrat shops (see page 9), and should you want to as well, head to threewavemusic.com. Turn to page 34 for more of America's best independent gear shops. ♫

NEW GEAR

BY STEPHEN FORTNER

ROLAND JUPITER-50

WHAT Do-it-all gig synth. **WITH** Deep modeled analog synth section and drawbar organ. "SuperNatural" behavior modeling for everything else, including great acoustic and electric pianos and orchestral sounds. Flexible, quick splits and layers. **WHY** It's lighter, more affordable, and frankly easier to use than its big brother the Jupiter-80.
$2,399 | rolandconnect.com

ALTO KICK 15

WHAT Keyboard amp. **WITH** Four stereo inputs plus XLR mic in on channel 1. XLR and 1/4" outs with ground lift. Built-in effects with bypass via footswitch. Total of 400W output power. **WHY** Floor monitors favor power over onboard mixing. Combo amps do the opposite. This seems to give you both.
$TBD | altoprofessional.com

ALPHA PIANO

WHAT Super-premium digital piano. **WITH** Real concert grand action, in which actual hammer strikes against sensors determine velocity. Vienna Bösendorfer Imperial sound engine with 60GB library. Design by Porsche. Height-adjustable from Petrucciani to Hornsby to standing. **WHY** Because you can.
$TBD | alpha-pianos.com

VISCOUNT PHYSIS PIANO

WHAT Physical modeling stage piano. **WITH** Acoustic piano, Rhodes, Wurly, Clav, and mallets created by modeling. Capacitive touch display with configurable controls. **WHY** We heard it at Musikmesse, and if it hits U.S. shores it could be a real contender.
$6,000 est. | physispiano.com

MOTU DIGITAL PERFORMER 8

WHAT The much-loved DAW, now on Windows. **WITH** PunchGuard to capture four seconds before and after each recording pass. Fifteen new plug-ins. New video engine with HD playback on main or separate monitor. **WHY** Now you can be a DP pro whether you're a Mac or a PC. This is huge.
$TBD | motu.com

NORD ELECTRO 4D

WHAT Clonewheel and vintage keys specialist. **WITH** Latest generation of Nord's famously good B-3, Rhodes, Wurly, and Clav sounds—now with physical drawbars in the organ section instead of buttons. Ability to play a wide variety of sounds from the Nord Sample Library. **WHY** Because you've been saying, "If only the Electro had drawbars" for ten years now.
$2,300 est. | nordkeyboards.com

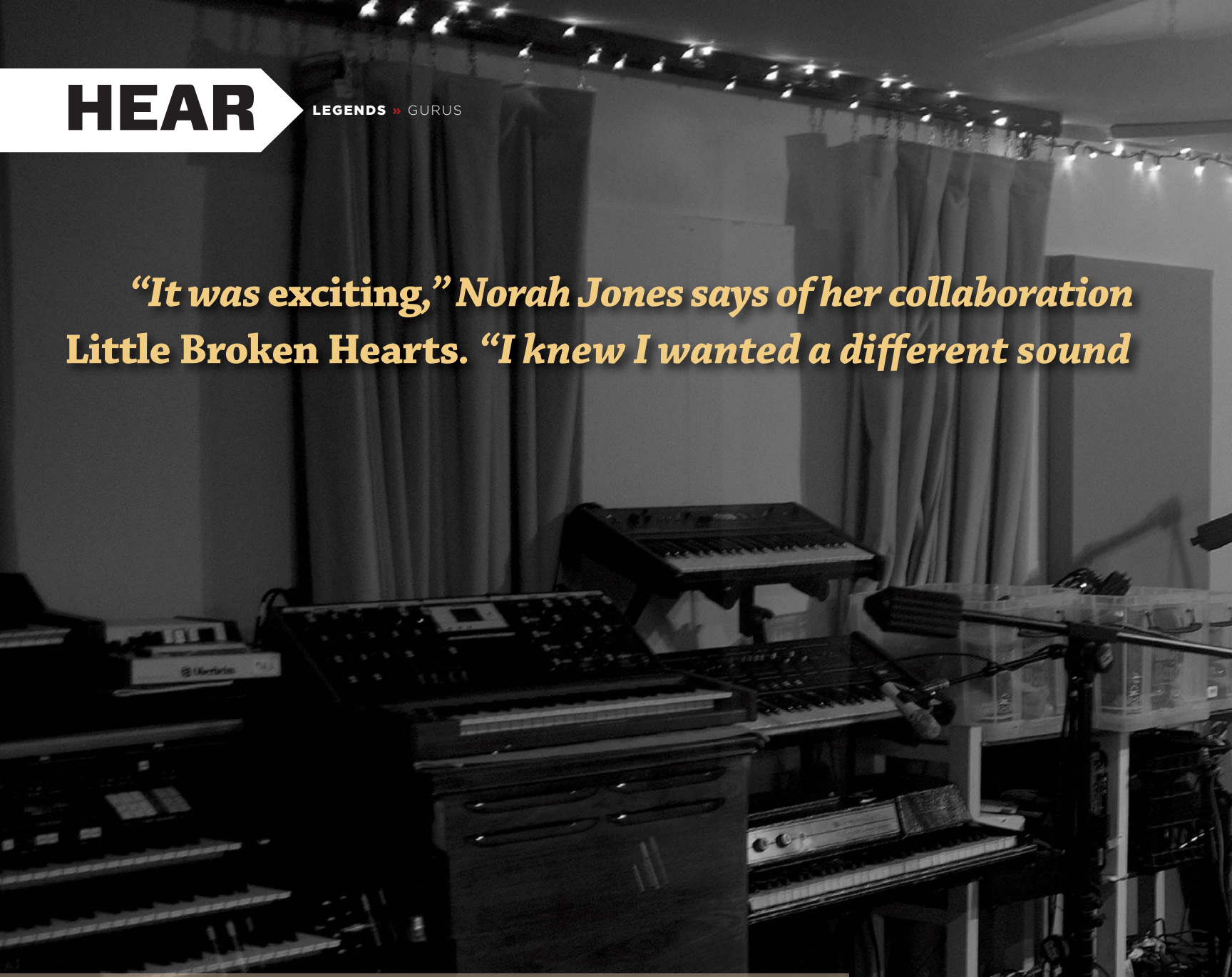
IZOTOPE IRIS

WHAT Graphically-based spectral synthesizer. **WITH** Visual representation of the harmonics-over-time of any audio file. Painting and drawing tools for creating morphing sounds. Deep multitimbral and modulation capabilities. **WHY** As a rule, nothing makes us go, "We haven't seen anything like this." This sound designer's dream is an exception.
$249 | izotope.com

KORG MICROKEY 25 and 61

WHAT The three-octave MicroKey (center) gets bigger *and* smaller siblings. **WITH** USB hub functionality. Korg Legacy Collection and licenses for M1-Le, Toontrack EZ Drummer Lite, and Applied Acoustics Lounge Lizard Session and Ultra Analog Session. **WHY** If you need a mini-controller, these have the best feeling keyboards around.
25-key: $69.99 street | 61-key: $179.99 | korg.com

All prices are manufacturer's suggested retail (list) unless otherwise noted. Follow keyboardmag.com/news and @keyboardmag on Twitter for up-to-the-minute gear news.



"It was exciting," *Norah Jones says of her collaboration* Little Broken Hearts. *"I knew I wanted a different sound*

Norah Jones

BY JON REGEN

A DECADE AFTER THE RELEASE OF HER DEBUT ALBUM *COME AWAY WITH ME*, the multiple-Grammy-winning Jones returns with *Little Broken Hearts*, which may surprise fans of her past fare. With Danger Mouse (a.k.a. Brian Burton) at the helm, Jones delves into deeper, often darker tonal territory, framing each of the album's 12 songs in cinematic sonorities. Her luminous voice is bathed in a sea of sinewy guitars, processed pianos, and searing lyrical fare. This is Norah like you've never heard her before.

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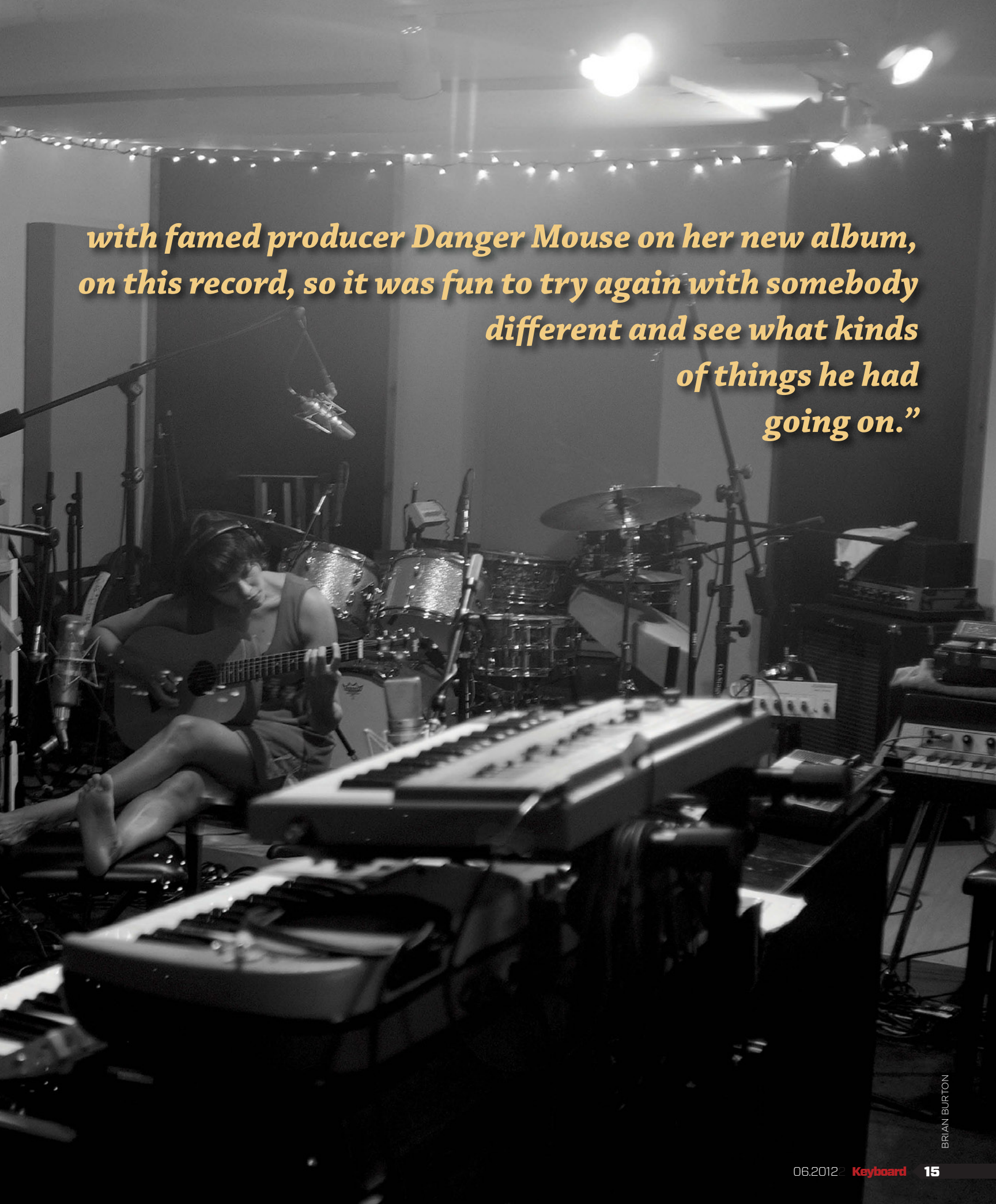

with famed producer Danger Mouse on her new album, on this record, so it was fun to try again with somebody different and see what kinds of things he had going on."

BRIAN BURTON

NOAH ABRAMS

This album feels like a reinvention—the songs, song structure, use of instruments, and even your voice in almost effect-like ways. Was it liberating to work in a whole new way?

It wasn't liberating because I didn't feel like I was *imprisoned* previously. It was just fun. The great thing was that we were in Brian's studio with all of his gear and his engineer, so it was his world. I knew it was going to sound different because of that, but I *like* his world—I like the sounds he gets. Brian and I had worked together on his *Rome* record, and during that time, we got to know each other really well. We had gotten together for five days about three years ago to try collaborating on things, and it felt really good. So it was easy to commit to two months of working with him again.

How would the two of you collaborate?

A song might start with him playing drums and me playing keyboard bass, and then I'd sing gibberish over it. Or he might play a guitar part that I'd sing over. Or he might say, "Ooh, sing this," and I'd sing it and then come up with a piano part. It was actually very *acoustic* in the way we played things. But it's the way Brian *treats* things coming out of the board that make them sound unique.

There are instances all over *Little Broken Hearts* where as a listener you're not exactly sure what you're hearing.

Yeah. For example, the record starts with an arpeggiated guitar part on "Good Morning," but everybody thinks it's a piano. I really like that some songs were recorded very "stripped-down," with just me singing and playing. But the way it sounds on the recording is so atmospheric—it's got such a thick vibe. And that's just from all of the different recording techniques used on the album.

What's in your studio at home?

I have my studio that I share with Lee, my old bass player. You're talking to the least gear-headed person on the planet, but he got really into gear and just went nuts. I reaped the benefits—we have a two-inch tape machine and a Neve console. Part of what was so cool about making this album was that I didn't *know* how to get all of the sounds out of weird pieces of gear. It was interesting to see how acoustic everything actually was. My impression of recording with Brian initially was that he'd be using more loops. But everything was recorded in a very organic way and then sonically treated after the fact.

Do you remember how "Happy Pills" came about?

Brian looked at me with a guitar and started singing, "*nah nah nah nah . . .*" He was just singing to me, kind of goofing around. And we were like, "Why don't we record that on our phones, just in case." A couple of days later when we were done with an idea we were working on, we thought, "Let's see if we can come up with something for that '*nah nah*' track. That was kind of nice." That's why working this way was so inspiring. Even though we were very structured—going in five days a week—it was totally loose when we were in the studio. That's how you keep that *spark* alive—by chasing things and being really open. It's about having no agenda.

"Good Morning" has a shimmering loop in the beginning that mutates over a bed of guitar chords. What's the bell-like instrument that floats over the lyrics, "folding my hand?"

It's a Rhodes. Many of the bell-like sounds on the album were played on a Rhodes because it gets such a nice, bell-like tone. I guess I knew that, but Brian was always pushing to try something high up on the Rhodes. It appears on the record in a number of different spots. For live shows, I use a Wurly. I really don't want to bring a Rhodes on tour just for that sound, so I found a way to re-create it on the Wurly with a couple of pedals.

What model Wurly are you playing these days?

I play the student model. You know, the tan one with the built-in speaker? That's what I have, but I had the speaker removed. It *does* sound different than the normal ones [model 200 or 200A], though.

"Good Morning" has a juxtaposition of major versus minor. That happens a lot on the album.

"Happy Pills" is an example of that as well. When we were writing lyrics for it, we were almost like, "This is *annoying*. These lyrics have to be the opposite." If they were happy lyrics, things would be just a little *too* happy. I don't like "happy" music, necessarily. I don't find myself listening to a lot of it. I like Brazilian music, but then I don't know what they're saying! [*Laughs*.]

"Say Goodbye" is another example of a tough sentiment with a playful musical message. Was that your intention?

The intention in the writing was very abstract. We were just kind of throwing things at the wall. That song is *just* the two of us. I'm playing keyboard bass and doubling it on guitar because I like the way those instruments sound together. Brian played drums, I played bass, and we took it from there.

What about the guitar hooks at the beginning?

Those came later. Whatever hooks ended up in my music in the past have been almost accidental. But Brian is very mindful of a track *needing* something—and that's nice.

What's that mutating keyboard part in the bridge?

It was a Wurlitzer processed with a filter that pitched it up an octave. That made it sound completely different. We did that on a few songs on the album.

What was the impetus to delve deeper into vibey vocal processing on this album?

I've been experimenting with vocal sounds since my third record, where I started using more of it. Brian and Kennie the engineer had a lot of ideas, and I loved it because it wasn't only reverb or delay. Sometimes you're hearing a Leslie speaker on my voice. That kind of experimentation was really fun.

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There's a long fade at the end of "Take It Back" that's almost cinematic. So much of this album feels visual.
That's how Brian is. If you think about his *Rome* album, it's a soundtrack album. I think that was in my head when I went to work with him. That kind of cinematic element definitely came out on the record. That's why we chose the "movie poster" as the CD cover. It ties in to the overall story.

You're playing a lot of guitar these days. Do you recommend taking up a second instrument to help musicians step out of their comfort zones?
Yes. In fact, it's sort of about my *limitations* on guitar. I wrote "Come Away with Me" on guitar. I've written songs on piano too. There's a song on my third album [*Not Too Late*] called "My Dear Country," and *it's* not a song I could've written on guitar. There are a lot of chords, and they're very involved. But I find that on guitar, I can be more focused on the melody and lyrics than on playing fancy chords, because I *can't* play any on guitar.

"Miriam" has an amazing sense of drama throughout. The end of it is almost like a battle cry. Was that intentional?
Definitely. We actually had a more stripped-down version that really worked well. But when we brought the band in to play on the end section, it seemed to make sense to try and pull more drama out of it because it's quite a long song, and also quite slow. The melody is very repetitive as well, so we tried to build it up slowly with live strings, synth strings, a lot of guitar, some piano, and these really low, moody drums. From the very first demo of that song, we had a really long delay on my voice. We got used to it, but it also got distracting in certain parts of the song. We had to find the balance of just how much of that delay to use, putting it only on certain words. The effects on this record are as important, if not *more* important, than some of us. They're almost like another member of the band.

I was struck by your piano on Ryan Adams' *Ashes & Fire*. Who were your biggest influences coming up as a pianist?
The people I've tried to copy most are Ray Charles and Bobbie Nelson. It was fun doing those sessions with Ryan. I was psyched to be hired as a piano player!

You enjoy being a sideman?
Yeah, when I don't have to be front and center, it's a little easier. You get to collaborate with people, have fun, and just play what sounds good to you. You don't have to obsess over things the way you do when it's your own project.

Is it tough to reel in your piano chops in service to creative exploration?
I'm totally fine with it. I don't really "blow" that much in general. That's why the other band I'm in, the Little Willies, is so much fun. I get to play a ton of piano in that band, and I play a *lot*. But *this* music is about whatever's going to serve the song best.

It's been ten years since *Come Away with Me*. How have you grown the most as a songwriter?
I think it's about learning more things in life. I *love* writing "story songs" where you come up with a character and develop it. But those songs have to start somewhere in your own reality. It can be your friends going through something, or something you watched on TV, but you have to be connected to something in the song. It can turn into total fiction from there, but it has to start from reality. ♫

Recording Norah

"Half of *Little Broken Hearts* was recorded at Mondo Studios, the personal studio of Brian Burton [a.k.a. Danger Mouse] in Los Angeles," says Todd Monfalcone, who engineered the album along with Kennie Takahashi. "The other half was recorded at Electro-Vox Studios, right across from Paramount in Hollywood. It's an incredible facility that's been there since the 1930s, and it has a killer collection of vintage gear.

"Many of the songs were recorded by just Norah and Brian at Mondo," Monfalcone continues. "Later, they took them to Electro-Vox to add other instruments and musicians. At Mondo, we recorded to a Pro Tools HD 3 system, mostly using Brent Averill mic preamps, along with a Golden Age microphone amp by Shadow Hills, which is modeled after the original preamps designed by Bill Putnam Senior at Universal Audio."

Little Broken Hearts simmers with a captivating collection of vintage keyboards, many from Burton's collection. "We had an amazing array of old organs and synths that were wired in so Norah and Brian could record quickly when inspiration struck," Monfalcone recalls. "Everything from a Hammond A-100 organ and Leslie speaker to a Fender Rhodes Stage with accompanying Satellite speakers and a student model Wurly modified with a tube output transformer. We found that a lot of the older, funky instruments sound better when you amp and mic them. We also used a bunch of vintage organs, including a Magnus chord organ, a Farfisa Pianorgan, a Kimball EP 4 Fun-Time organ with a built-in Elka drum machine, and an enormous Kawai from around 1984 that has three manuals and lots of unique sounds."

A 1960s Yamaha upright piano was recorded with ADK Vienna mics placed behind. "Norah's vocals were mostly recorded with a 1950s Neumann U47 mic through a Brent Averill 1272 preamp and Empirical Labs Distressor," Monfalcone continues. "We also used some smaller mics, including a Mojave Audio MA-100 and Telefunken D19. Most of the effects on the album were 'in the box,' including Line 6 Echo Farm, the Waves H-Delay, and Avid ReVibe."

FRANK W OCKENFELS

Watch Norah's video for "Happy Pills," and get a list of all the gear in the photo on pages 14 and 15.
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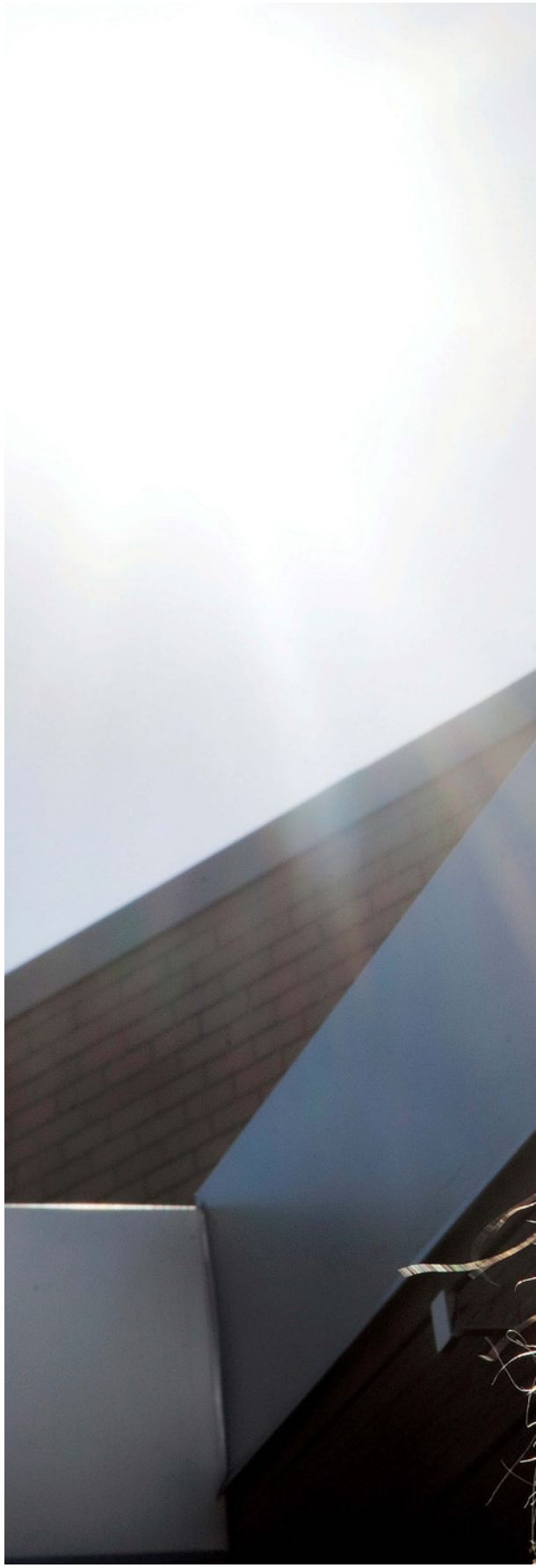
STEVE DUDA

Ponders Programming and Production

BY FRANCIS PRÈVE



IN ELECTRONIC MUSIC, THERE ARE TONS OF DJS AND PRODUCERS, BUT VERY few true wizards. Steve Duda is a wizard's wizard. The kids know him as Deadmau5's BFF and half of their electro-tech side project, BSOD. Old-schoolers know him as part of Trent Reznor's Nothing Collective, where he contributed sound design to Nine Inch Nails' album *The Fragile*. Tech geeks know him as the inventor of FXpansion's BFD virtual drum instrument—not to mention his own envelope-pushing music software, like Nerve. Here, he shares his insights on programming, production, and the future of musical collaboration.

How did you get your start as a musician?
My father is a classical music aficionado and I was thrown into violin lessons around age five. I had some cheap, portable Casio and Yamaha keyboards as a kid, and that made me interested in synths. In high school, I worked at a music store and spent all the paychecks on gear. I discovered I had perfect pitch working there, though I think everyone can if they focus on it. After tuning a hundred guitars I realized I had the sound of the open strings memorized, and I use these notes as my "pitch memory" to this day. At university, I majored in composition with a focus in electronic music. This is when I started playing keyboards in bands. My first real sound design was all of the keyboard parts for a Prince cover band, using my modest arsenal of a Roland D-70 and JD-990, and a Sequential Prophet-600.

What was your studio rig like back in the day?
My high school bedroom studio was a Mac SE with Opcode Vision; Roland Alpha Juno-2, S-330, and MT-32; Fender Rhodes; Boss SE-30; Yamaha FX-500; and a TASCAM DA-30 DAT recorder.

What's it like now?
Like many people, I've transitioned mostly into the virtual domain. I make tracks on Windows and have a MacBook Pro for performing—my favorite hardware is my computers, followed by my Genelec 8250A monitors, then my vintage ARP 2600. I have a bunch of gear sitting around that doesn't get much use but that I can't bring myself to part with, including a Moog Slim Phatty, Elektron SIDstation, Doepfer Dark Energy, Clavia Nord Modular, and Kurzweil K2500.

What was your trigger for making the leap into software design?
Working as an engineer in L.A. on rock records, which was once just a dream, became a boring reality. My mind began to wander on drum takes and I realized there weren't any drum libraries that sounded convincingly real. I started recording my own for personal use, but at the time [2001] the computer couldn't keep up with all of the multi-mic disk streaming. So I approached FXpansion about managing and streaming all these samples, and BFD was born.

The success of that product inspired me to learn about programming. I always thought that creating software should be left to wizards who

Steve Duda's Top 10 Tips for Producers

1. **Trust your ears.** The most successful electronica artists aren't necessarily the most technically knowledgeable. They *are* the most comfortable making quick decisions.
2. **Less is more.** It's so easy to layer tons of loops and sounds, but so much of it is clutter. When I hear sounds on every sixteenth-note of someone's demo, I ask myself, "How many of these notes are even important?" The answer becomes, "None of 'em!"
3. **Melody and harmony.** As a *Keyboard* reader, you know more about this than most aspiring DJs. Let melody be the focus, and let the harmony be interesting.
4. **Spin and remix songs you like.** You'll learn a lot more about the song in the process, and gain valuable skills.
5. **There's no right way.** I've watched different people approach every facet of music production and engineering entirely differently. Don't assume there's specific knowledge you are lacking—all you may be missing is discovering your own solutions!
6. **Don't miss the forest for the trees.** It's easy to start fiddling with knobs on a sound, expecting that eventually, you'll strike gold. While this can happen, it's not an effective way to get actual music made.
7. **Know when to call it done.** I once read about Zen watercolor artists who paint a picture in minutes, tear off the page, and start another. The most succesful electronic producers I know are able to make something and then seemingly forget about it and start another.
8. **Find your own sound.** Most of us want to do this, but have no idea how. My suggestion: Aim for the music you want to hear but can't find anywhere.
9. **Always be a student.** The best producers I know are curious by nature, even if they have huge success behind them. I can't count how many times someone has asked me, "What synth did Trent Reznor or Deadmau5 use for _____ ?" The answer is almost always, "Whatever he didn't use the last time."
10. **Be positive.** Nothing is worse than being approached by someone who comes off as jaded or desperate. Even if you *are* desperate to have a song listened to, spun, or signed, exude that you're happy about what you do. It's contagious.

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must wave magic wands when nobody's looking, so with virtually no experience, and at the tender age of 30, I dove into C++ and VST and AudioUnit design.

What was your first coding project?
I asked a programmer friend where to begin, and he said, "Download Microsoft Visual Studio Express for compiling and get the Steinberg SDK—they're both free. Your first task is to get the example VST plug-ins to compile." Four hours later, I had a working gain plug-in. At that moment, I was hooked.

Which leads us to your software. Nerve is one of the most revolutionary groove tools on the market, and LFO Tool takes modulation to new levels. What's your inspiration for these products?
Before I started making software, I'd approach other developers, either to improve their existing product or with new ideas. Similarly, I listen to other producers' needs, and if I don't know of—or can't find—what they want, I start going about it myself. As far as Nerve and LFO Tool go, I owe some of both to Deadmau5. With Nerve, we'd made a sample CD together called *XFRSCD01*, and were talking about making a second one. We decided that to include a plug-in as a bonus would be cool, so he sketched out a wireframe type of GUI. The idea was to make something cute and simple, but I wound up making something I'd want to use myself.

With LFO Tool, Deadmau5 wanted a plug-in to control modular synths via analog CV [control voltage]. I decided it would be a lot more saleable as an effect than as a CV generator, so I changed it and added some features like filters and MIDI CC output. A lot of people use it to sculpt sidechain compression, which usually is a pain to set up, whereas with LFO Tool you get a result instantly.

What do you think about the future of our industry?
One vision I have is that online music collaboration will become part of global culture. Some company will finally get it right, merging the interactive technology from multiplayer video games with digital audio workstations, creating a production environment that's actually a fun virtual space. We've also witnessed a huge shift in the business of selling music, from the major labels being a necessity to them struggling to stay relevant. Although music sales have been trending downward, *digital* sales are growing as a sector. I started Xfer Records as an outlet for selling my music without a middleman, but I also sell my software through Xfer.

What should we expect from you in 2012?
I'm growing the music side of Xfer and am going to feature some great emerging artists. I'm further developing my live setup, which includes a lot of custom software to help me improvise. I'm trying to blur the lines between a DJ set and a live performance, where I can take things between pre-arranged and fully improvised at will. I'll be touring more in North America this year, and a couple of new releases under my own name on Xfer are ready to go, as is a new BSOD single I think fans will be happy to see. I'm also collaborating on a full-length album with Dillon Francis. I'm excited—the sound is fresh to my ears, which is difficult in electronic music. ♫

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Clave Concepts

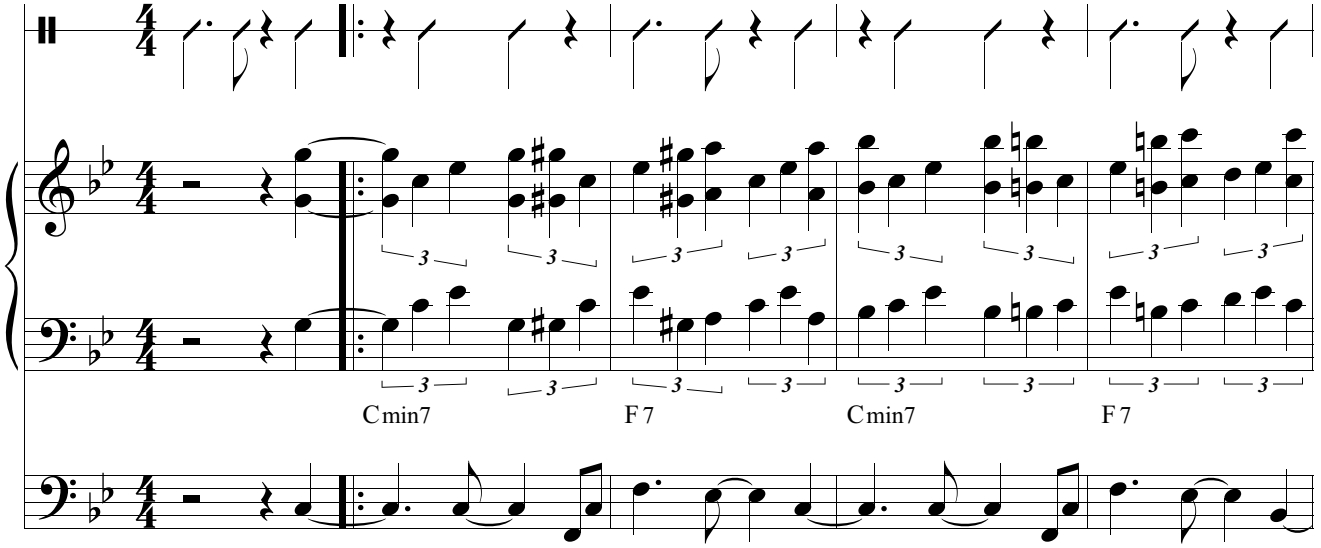
BY HECTOR MARTIGNON

I'VE ALWAYS BEEN FASCINATED BY THE PERCUSSIVE ELEMENTS OF LATIN JAZZ, SO IT WAS natural for me to adapt the ideas emanating from its potent percussion section to the piano. These concepts help to harness and reinvigorate the often-neglected percussive nature of the piano. Puerto Rican pianists like Eddie Palmieri and Papo Lucca, as well as Cuban artists like Lily Martinez and Lino Frias, developed much of the language that so strongly influenced me and most other pianists playing Latin jazz today.

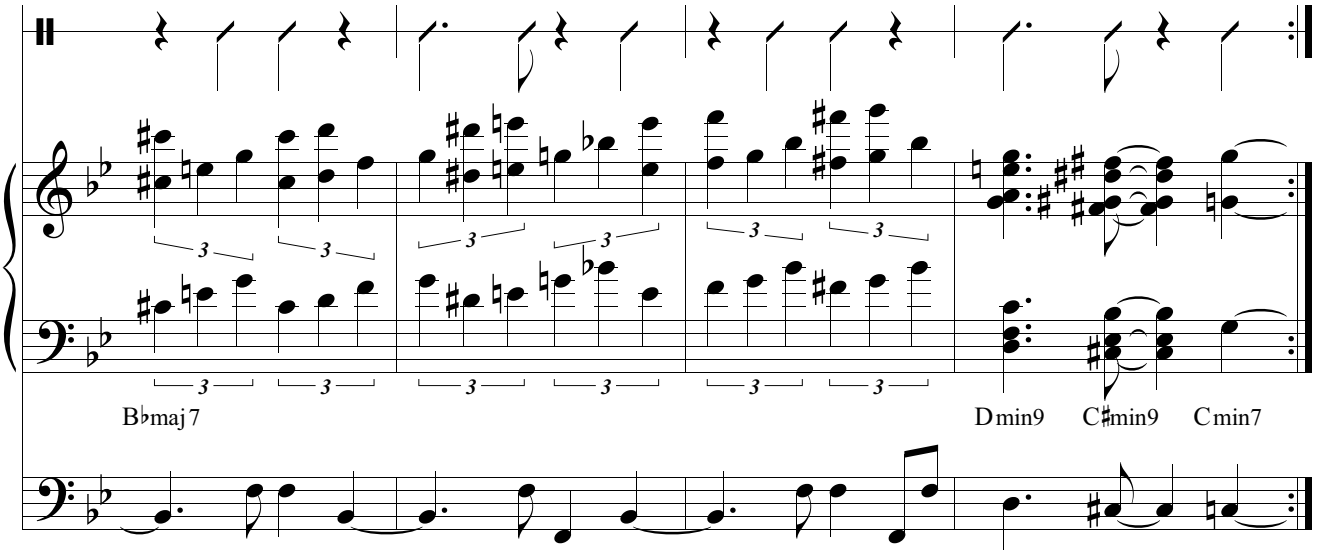
Most Afro-Cuban music is structured around a two-bar rhythmic pattern called the **Clave** (pronounced "clah-vay") which has either three hits in the first bar and two in the next, (3/2 Clave) or the reverse (2/3 Clave). Many tunes start with 3/2, only to switch to 2/3 for an improvised section through the addition of an uneven number of bars—often one, three, or five—as a transition. In these examples, you'll see the Clave pattern above the piano staff. Here are some concepts to incorporate Afro-Cuban piano concepts into your own Latin and jazz explorations.

1. Quarter-Note Triplets

In **Ex. 1**, I employ the genre-typical elements of arpeggiated chords, alternating single notes, and accent-stressing octaves. This style would typically be played using eighth-notes, but here I am using **quarter-note triplets**, accentuating with the octave every fourth note. I'm also advancing an interesting harmonic approach to the underlying bass line. All instruments here start on the fourth beat, known in the Latin scene of New York as "el afinque."

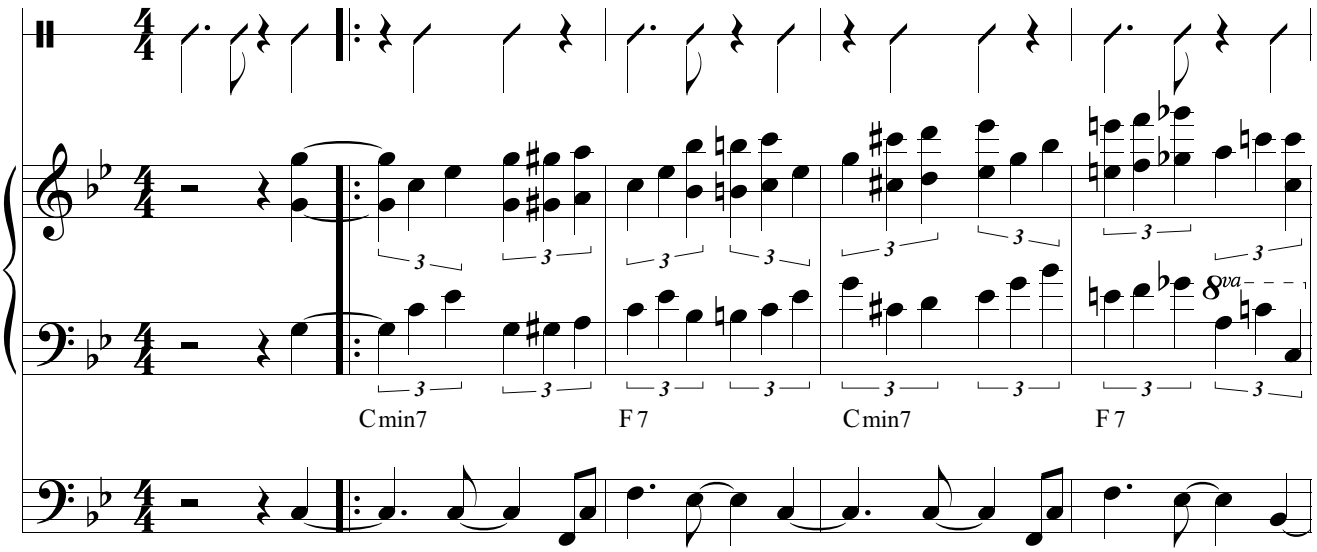


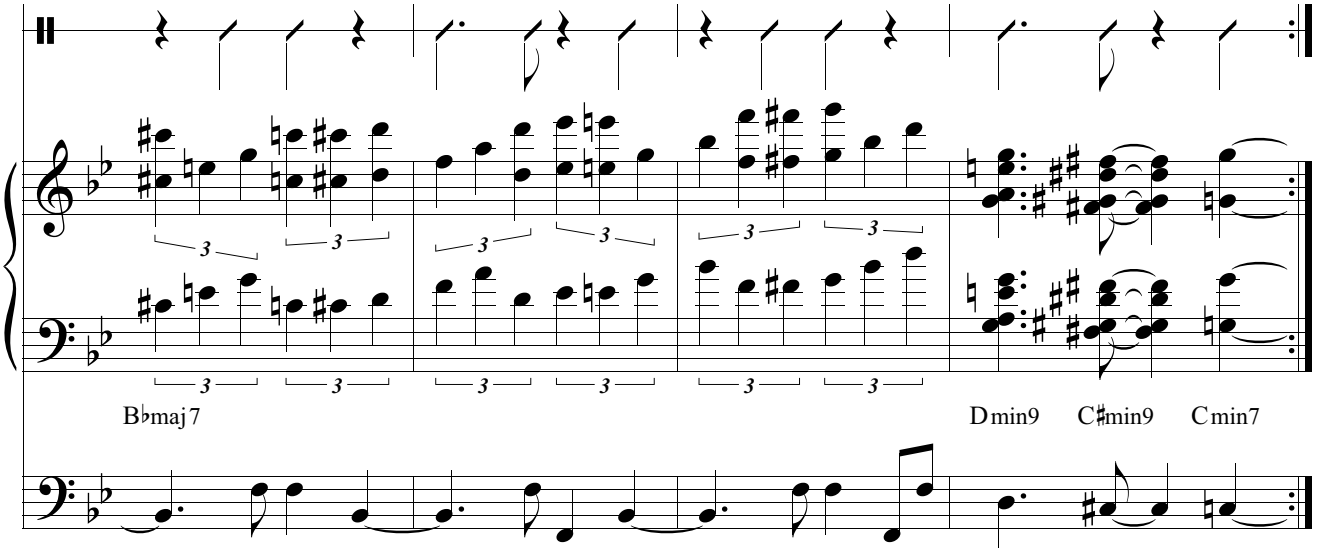
Left: A pair of claves, a traditional percussion instrument often used to play the Clave rhythm. **Right:** Salsa and Latin jazz legend Tito Puente, the master of the Clave.



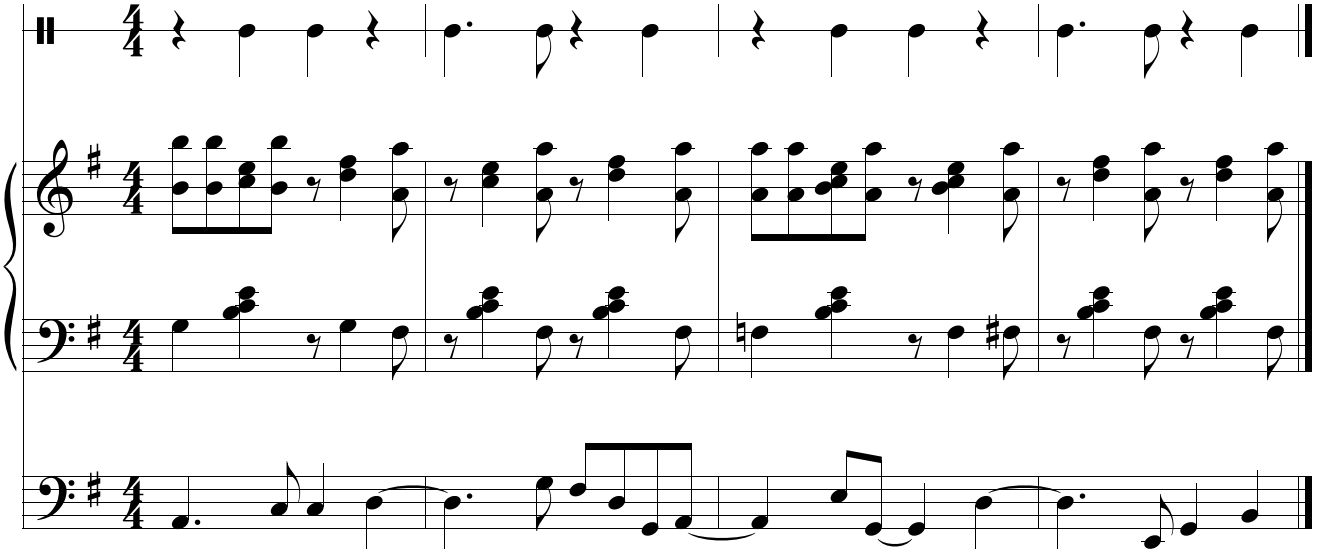
2. Groups of Five

Ex. 2 uses the same principle as Ex. 1, but it employs groups of five, adding an extra octave before each group. This polyrhythmic concept is particularly effective in relatively long harmonic progressions.





3. Cha-Cha ii-V Chords

Ex. 3 uses a typical Cha-Cha, a *ii-V* half-progression, where the seventh of the *ii* minor chord resolves in the third of the *V7* chord. The third bar nonetheless brings a surprise element in that the third of the *V7* resolves to the flat sixth of the *ii* chord, only to go back to the same path. Note that contrary to common use, the octaves in the right hand *don't* mirror the lowest note in the left hand. This enriches the color of the chords, as well as the inner voices of both hands, adding tension and color to the whole phrase.

GERMAN BARON

Practice Tip

"Given that Latin jazz is, in general, barely harmonically distinguishable from 'straight ahead' jazz, I've always differentiated the two by applying complex rhythmic concepts to both my harmonic and melodic statements," says New York-based, Colombian born pianist and composer **Hector Martignon**. His last two solo releases *Refugee* and *Second Chance* were nominated for Grammy Awards, and as a sideman, he has performed with Paquito D'Rivera, Gato Barbieri, Steve Turre, Don Byron, and Tito Puente. Martignon also penned the acclaimed book, *Salsa Piano*. Visit him at hectormartignon.com.

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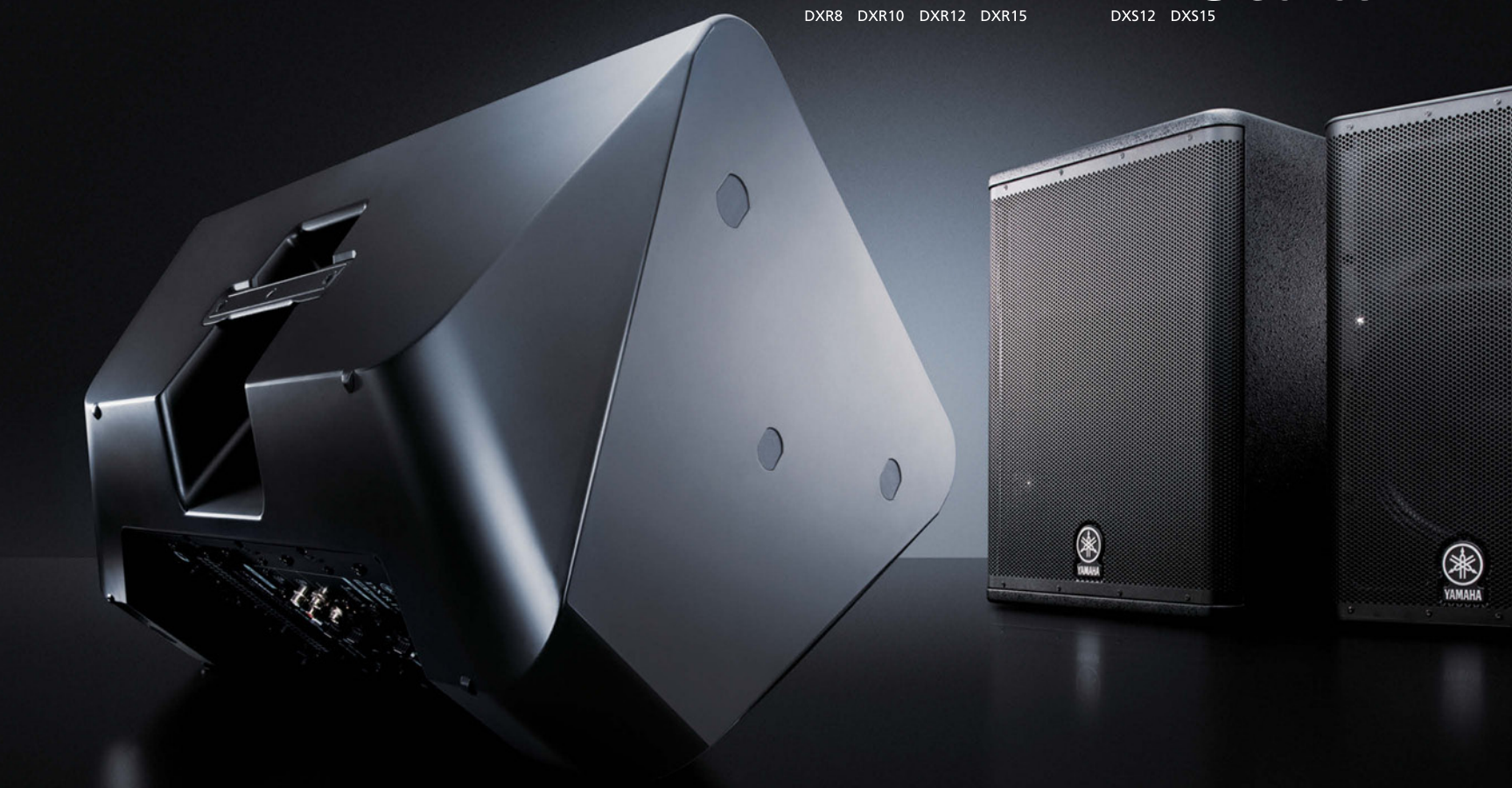

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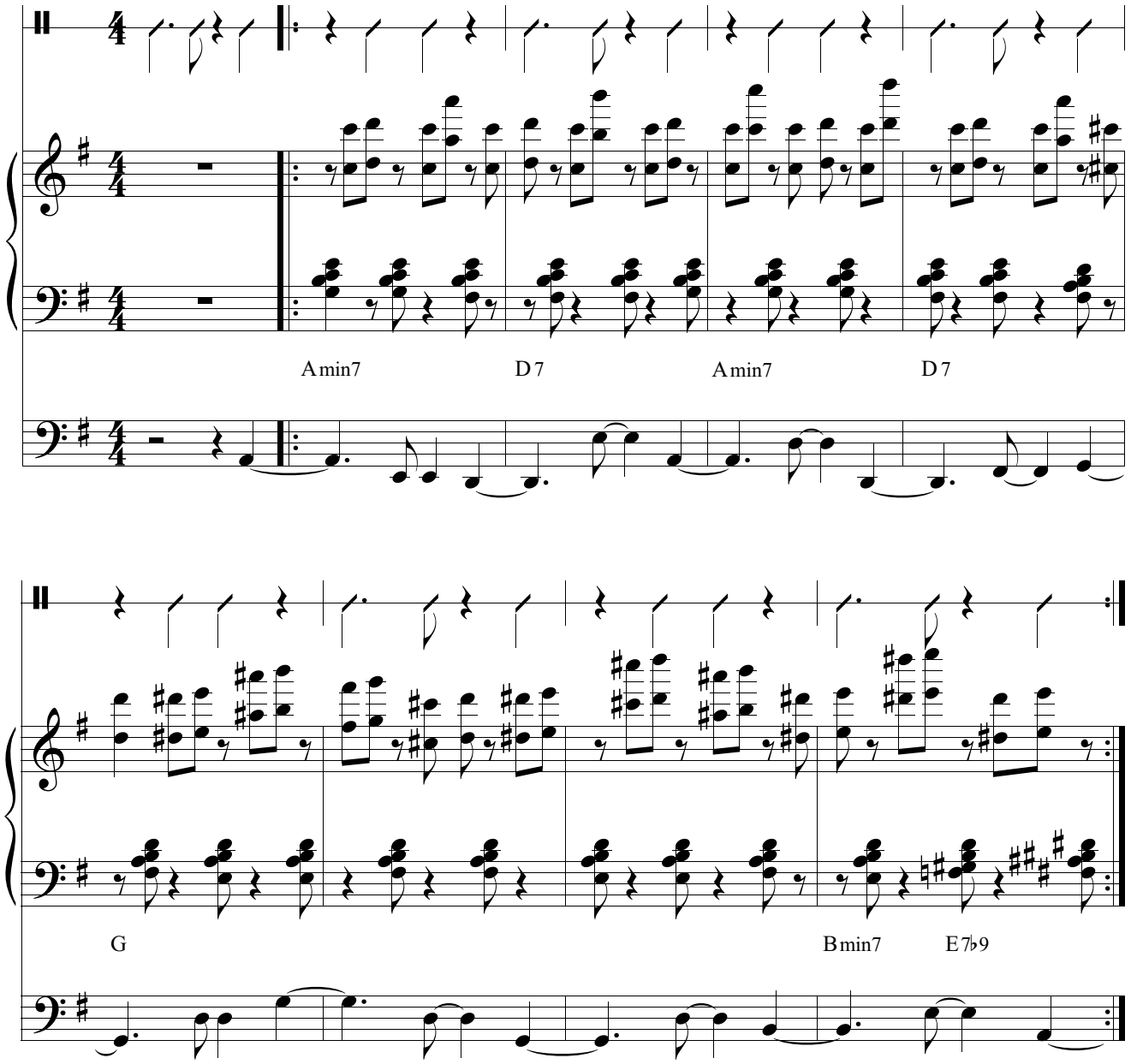
4. Groups of Three

Ex. 4 reverses the concept developed in Ex. 1, developing a simple but very percussive motif of regular eighth-notes in groups of three. This displaces the rhythmic center of gravity by a quarter-note every bar. The figure arises from a chord in the left hand followed by two octaves in the right. The first octave tends to stay the same while the other moves ever upward for dramatic effect. In the second half of the example, using the same rhythmical device, I alternate two chromatically neighboring notes in the octave movement, shifting that binary group up and down, thereby creating a third level of rhythmic and harmonic interest.

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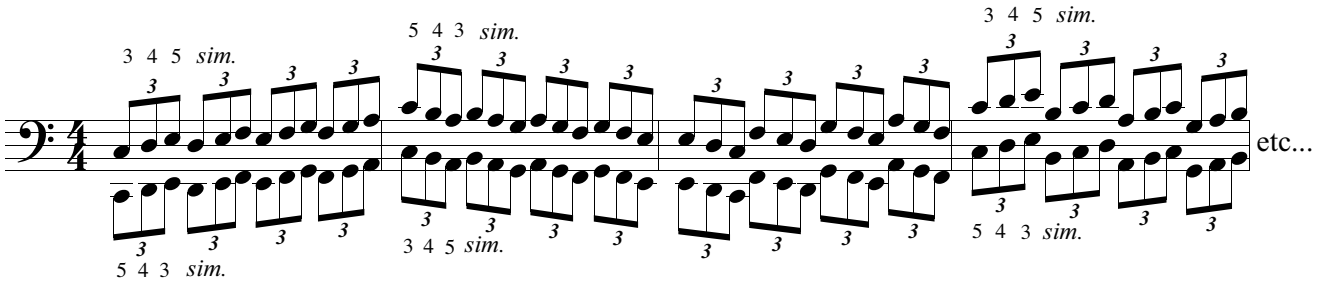
Power Warm-Ups

BY DAVID COOK

I'VE WORKED OVER THE YEARS TO DEVELOP A PROGRAM OF WARM-UPS THAT ENGAGE AS MANY of the muscles used in keyboard playing as possible. Let's start here with five of my favorites. Some might make their way into your improvisation; others are presented simply to get your technique going in new directions. Practice these in all 12 keys, hands together, one octave apart, up and down for at least two octaves

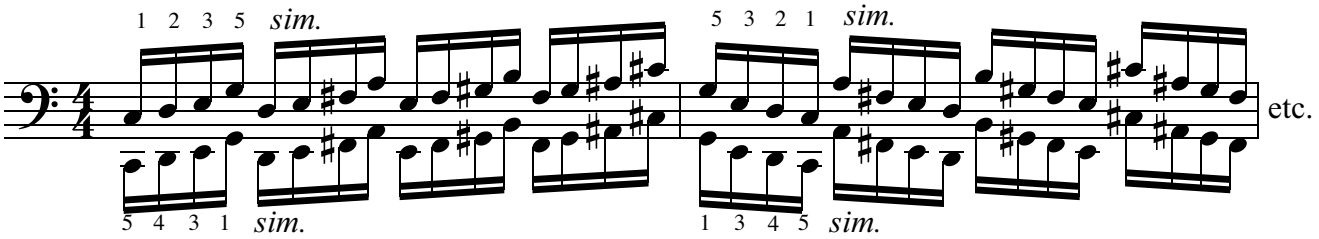
1. *3-4-5* Diatonic Major

The fourth and fifth fingers are the weakest on the hand, so I like to attack them with techniques that put them in unique positions, like these in **Ex. 1**. Once you've gone up and down for two octaves, it's time to invert.



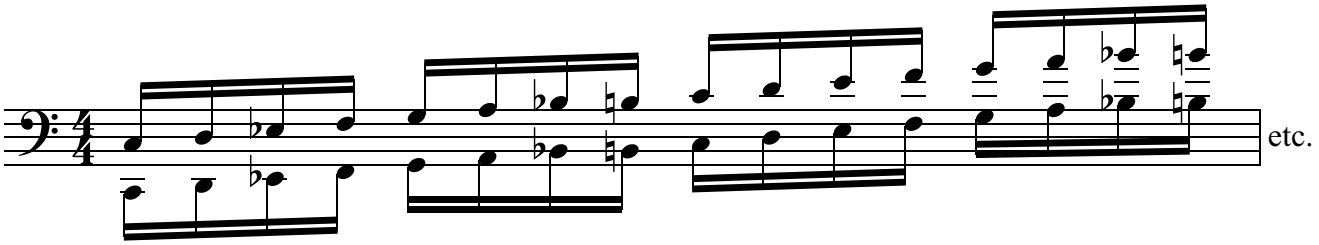
2. *1-2-3-5* Whole Tone

Ex. 2 gets your thumbs and the rest of your arm involved in the process. You can really move with these! Invert this exercise after two octaves up and down as well.



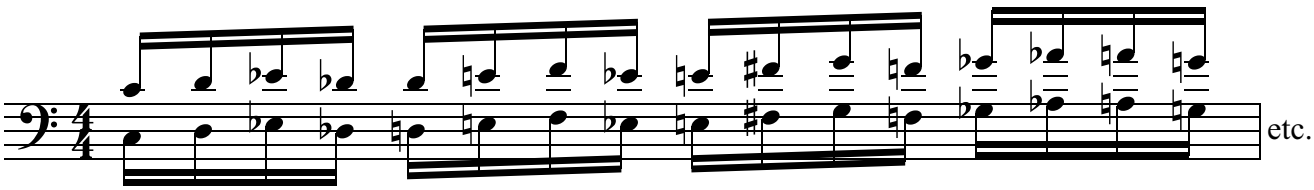
3. Dorian with Added Major Seventh

Ex. 3 engages the muscles that you use when 'crossing over.' This one keeps working that fourth finger.



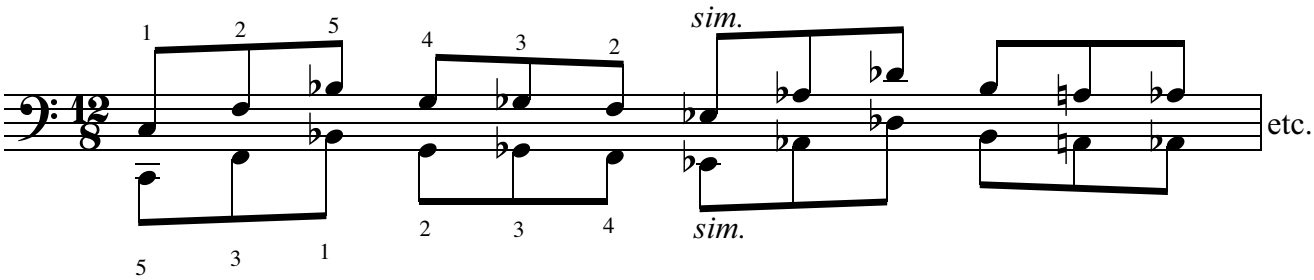
4. The "Stockdale"

Ex. 4 features a series of whole steps, alternately inverted. The extremely talented saxophonist Kurt Stockdale came up with this on his horn as something to really let loose on for uptempo solos. I found the fingering to be challenging on the piano, so why not warm up with it?



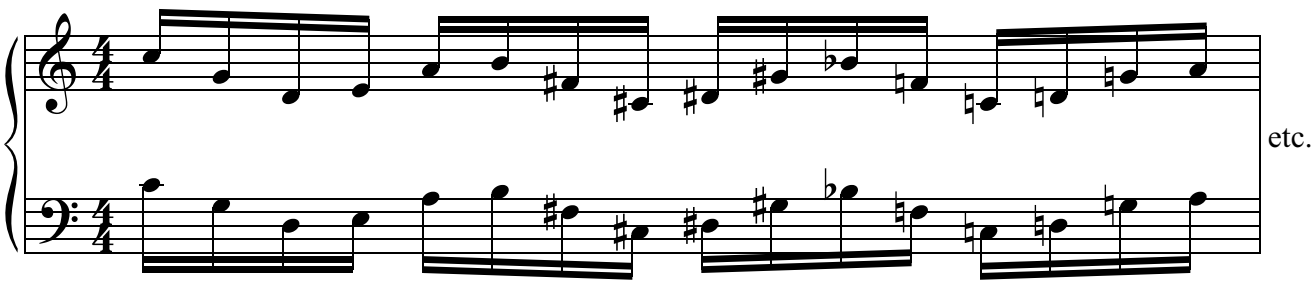
5. The "Ferber"

Another inspiration of mine, trombonist Alan Ferber, uses the patterns in **Ex. 5** in his solos and they never sound like an exercise. Stack upward perfect fourths twice, then octaves down to the fifth, then play two half-steps down, and repeat the entire pattern up a minor third, much like a diminished pattern.



6. The "Downward Ferber"

Ex. 6 is a five-note pattern also built on fourths. The pattern goes down two perfect fourths, up a whole step, then up another fourth. Repeat the entire pattern down a half-step.



SARAH SLOBODA

Dexterity Matters

"Music is more than just chops—your personality, artistic expression, and sense of camaraderie all make you stand out as a player. But if your chops aren't happening, it makes everything else that much harder," says **David Cook**. Currently musical director for four-time Grammy winner Taylor Swift, he has also accompanied Jennifer Hudson, Natasha Bedingfield, and Marianne Faithfull. Cook's debut album *Pathway* is available now. Visit him at davidcookmusic.com.

SOUNDCLOUD

Hear David play audio examples of these warm-ups.

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INDIE MUSIC STORES THAT ARE BEATING THE ODDS

BY OWEN O'MALLEY, STEPHEN FORTNER, TOM BRISLIN, AND RICHARD LEITER

INDEPENDENT GEAR RETAILERS FACE MORE CHALLENGES THAN EVER. ESPECIALLY in the keyboard, recording, and pro audio sectors, which have incredibly tight margins, not to mention informed, price-savvy customers like you. Yet many stores are thriving, thanks to a focus on service, music education, and building community in their local scenes. Here's a very incomplete list of some who are at the top of their game.

ANALOGUE HAVEN | online only

Gear focus: Doepfer, Moog, Dave Smith, Nord, Elektron, Metasonix, Vermona, and more. Specializes in hard-to-find analog and modular synths, as well as bigger names such as Alesis.
What's special: Analogue Haven is the sole U.S. distributor (though not the sole retailer) of Doepfer modular gear. They're often first to carry new boutique offerings, and provide a 30-day warranty on all products in addition to what manufacturers offer. Analogue Haven buys and sells used synths, modular gear, and pedals. Have a specific (read: strange) equipment need? The staff is happy to put feelers out to help you find it. *OO*
analoguehaven.com | 310-451-7744

BANANAS AT LARGE | San Rafael, CA

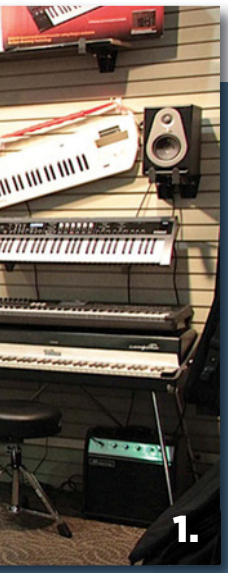
Gear focus: Roland, Moog, Access, Dave Smith Instruments, Nord, Korg, Yamaha, Alesis, and Casio, among others.
What's special: One of the leading NorCal outlets for keyboards and recording gear, with nearly every major product line (and a number of boutique ones). Bananas has instruments and audio equipment on consignment, along with a full rental department for sound systems, amps, keyboards, and related gear. An authorized Apple reseller, Bananas specializes in optimized A/V production systems, including Pro Tools HD. You're likely to see a staff member patiently taking 14-year-olds through GarageBand or a Casio Privia.
Lessons: Regular events and classes, including jam sessions with San Francisco Bay Area pros, and sound solution clinics for churches. *RL*
bananasmusic.com | 888-900-1959

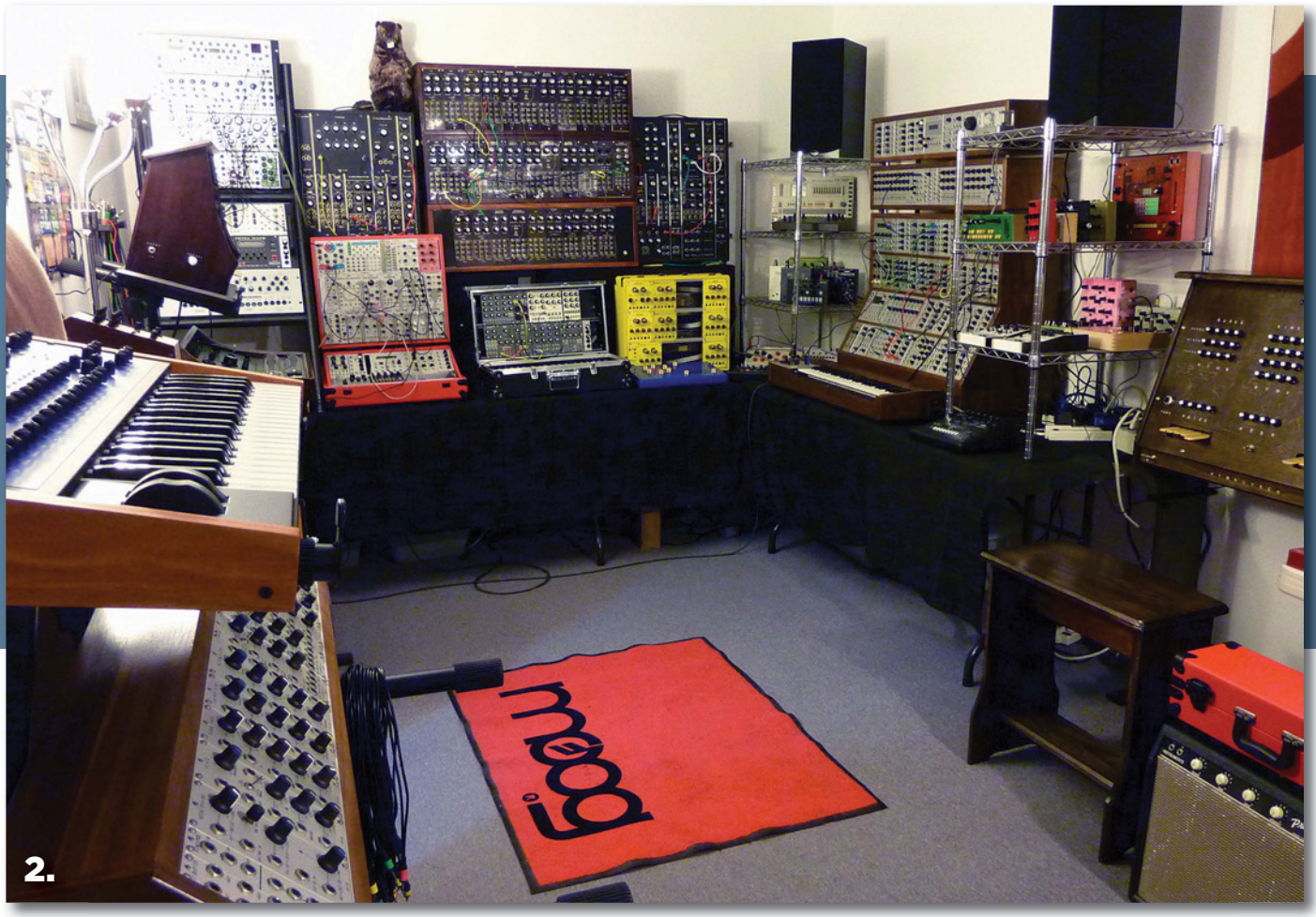
B&H | New York, NY

Gear focus: This NYC institution is a destination for photo and video pros, but also has an extensive selection of major brands of keyboards, recording equipment, and live sound gear.
What's special: The merchandising displays are impeccable. Whether you want to compare the Jupiter, Kronos, and Motif; ultrabooks for running soft synths; or even those high-end digital cinema cameras you have no use for but still drool over, you'll find everything plugged in, well maintained, and ready to demo. They also buy and sell used gear, maintain an onsite library of free application how-tos and buyer's guides they've created. Their huge brick-and-mortar store is one of a kind in any dense urban setting, and with a purchase, they validate parking—important in New York. *SF*
bhphotovideo.com | 866-264-5201

BEACOCK MUSIC | Vancouver, WA

Gear focus: Synths, workstations, digital pianos, and portables from major manufacturers such as





1. A vintage Wurly and Rhodes joined by new synths in the keyboard showroom of Beacock Music, a short hop across the Columbia River from Portlandia. 2. Hard-to-find modular and analog gear takes center stage at L.A.'s Big City Music. 3. Dave Contois leads teachers in a seminar on integrating technology and piano lessons at Contois School of Music in Vermont.

Yamaha, Roland, and Korg.

What's special: Beacock is the largest indie music store in the Portland, Oregon, area, selling everything from keyboards and recording gear to guitars, drums, and band instruments. They route multiple keyboards through shared monitor systems so you can A/B competing models. Beacock will let you rent-to-own synths, workstations, and digital pianos, has in-house repair, and works with nearby servicer Inner Sound for more demanding repairs. There's also consignment for used gear.

Lessons: Thirty-five teachers run group and private lessons in just about every instrument and all skill levels. Staff organizes bands that students can sign up for and hosts in-store concerts. Students can use the Yamaha Keyboard Lab. One-on-one training for workstation keyboards can even extend to house calls when the situation demands. *OO*

beacockmusic.com | 800-729-7134

BIG CITY MUSIC | Los Angeles, CA

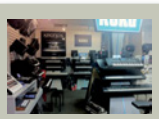
Gear focus: Korg, Moog, Fulltone, and more, alongside boutique brands Metasonix, Jomox, and Critter & Guitari.

What's special: Their appointment-only policy isn't elitist—it's because they want to give as much personal attention to the novice as they do to, say, Radiohead's Thom Yorke (who paid a recent visit). Want to demo hard-to-find gems like the Teenage Engineering OP-1, Analogue Systems French Connection, or eight-bit OTO Biscuit? Big City has them. As the only Dewanatron distributor, Big City is the only place you can play the unique Swarmatron (reviewed Dec. '11). *OO*

bigcitymusic.com | 818-985-0855

CHUCK LEVIN'S WASHINGTON MUSIC CENTER | Wheaton, MD

Gear focus: Nearly all major and many boutique brands, including Korg, Yamaha, Roland, Nord, Kurzweil, Dave Smith Instruments, Moog, Access, Casio, Waldorf, Arturia, Rhizome, Elektron, Alesis, and Akai.



Slideshow of many more pictures than we could fit in these pages!

keyboardmag.com/june2012

Synth heaven at Nova Musik's studio, which is often used for demos by product reps.

Left to right: Roger Linn, store owner Steve Taormina, and Dave Smith in front of Robotspeak in San Francisco's Haight-Ashbury district.

What's special: This much-loved hub of the DC music scene is extremely well stocked, with more than $8,000,000 in inventory. The keyboard department often has more than one of the same model plugged in and ready to play. The most junior salesperson has been there for over eight years, and they're all real musicians with industry experience. Chuck Levin's offers its own tech support and has four onsite repair shops for different instruments. The website offers sheet music downloads and hosts free classified ads for musicians. They also provide P.A. and keyboard rentals.
Lessons: Manufacturer reps are in the store daily and host free (and some ticketed) clinics on a regular basis. *OO*
chucklevins.com | 301-946-8808

CONTOIS SCHOOL OF MUSIC | Essex Junction, VT

Gear focus: Yamaha, Line 6.
What's special: Family-run since they started as a piano and organ shop in 1971, Contois became a major source of expertise during the heyday of Yamaha's FM synths. In 2010, they renovated their 4,000-square-foot facility and added "school" to their name to emphasize education. They're one of the few Yamaha dealers in the country that's authorized to do service and repair onsite.
Lessons: Seven private studios and one group classroom complement the retail floor. All the studios contain Sibelius, Music Ace, Pro Tools SE, Line 6 Pods, Yamaha Clavinovas, and more, and are networked so that students and teachers can collaborate. Teachers are all connected with tools such as Office365 and Facebook for communicating with students and parents. The school serves over 300 K-12 students weekly. *SF*
contoismusic.com | 877-266-8647

CORDOGAN'S PIANOLAND | Geneva, IL

Gear focus: Cordogan's houses five Kawai grands in one showroom, has a separate room dedicated to the full line of Yamaha Disklavier pianos, and dedicates another to used and digital pianos. They also carry acoustic and digital pianos from Estonia, Roland, Modus, Casio, Viscount, Story and Clark, Suzuki, and Palatino.
What's special: Cordogan's has more than 400 acoustic and digital pianos on display in a 30,000 square-foot facility. They offer consignment and rent-to-own, as well as moving, tuning, appraisal, refinishing, and repair—anything piano-related. Their website offers a wealth of information for piano buyers and sellers alike.
Lessons: In Studio K, a dedicated piano teaching center offers private as well as group lessons in a Yamaha Keyboard Lab. *OO*
chicagopianos.com | 877-242-9944

FULL COMPASS | Madison, WI

Gear focus: Virtually all major and mid-sized brands of pro keyboards and synths, plus recording, live sound, and AV production gear.
What's special: Huge selection. Because their retail floor is in the same building as their 80,000-square-foot warehouse, they can offer very quick delivery. A wide variety of keyboards are always ready to play, and separate demo rooms are for "testing things out that make more noise," in the words of CEO Jonathan Lipp. Their onsite production facility can be a TV studio, theater, banquet hall—whatever the occasion needs. Here, they host and webcast seminars with top musicians like Victor Wooten and engineers like Leslie Ann Jones, not to mention charity events and recitals by local students. They were also one of the first stores in the industry to cross-train product experts and assign them to individual customers as opposed to product categories. *SF*
fullcompass.com | 800-356-5844

NOVA MUSIK | Milwaukee, WI

Gear focus: A superstore specifically for synths and electronic music production, including all major brands plus many you'd expect to find in boutiques: Analogue Solutions, Doepfer, Elektron, Future Retro, Vermona, and more.
What's special: They're known mainly for mail order, but a retail showroom and studio in downtown Milwaukee is packed to the gills

Gilt for Gear

Taking its cue from flash-sale websites like Gilt and Woot, **Hello Music** offers deep discounts on a small stock that refreshes every 48 hours. How does it work? By putting a free membership wall between the public and their deals, and by disallowing price results in search engines, Hello can sell new gear as far below MAP (minimum advertised price) as they like. They get the majority from manufacturers and the rest of from stores with overstock. They offer a 365-day return period, and additional deals on services like mastering and music distribution—Delta in-flight play is a frequent option. Visit hellomusic.com. OO

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- **Powerful onboard 800-W (ZXA1) and 700-W (ZXA1-Sub) Class-D amplifiers**
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Group instruction at Cordogan's Pianoland in Illinois.

The extensive grand piano gallery at one of West Music's Iowa stores.

with analog goodies. They're big enough to have a 30-day return policy, but small enough to be staffed by true synth geeks, which means you'll get your pre-sales info and support from people who don't also have to cover entry-level electric guitars to make rent. *SF*
novamusik.com | 877-290-6682

ROBOTSPEAK | San Francisco, CA

Gear focus: Analog and boutique, including Moog, Dave Smith, Teenage Engineering, Doepfer, Elektron, and Pittsburgh Modular.
What's special: It's cred central for the San Francisco Bay area's electronic music scene—the go-to store for everyone from aspiring Skrillexes to DIY'ers whose main instrument is a soldering iron.
Lessons: Recurring courses include Ableton Live, Pro Tools, Logic, Reason, Max/MSP, modular synth design, recording, and circuit-bending—and are very affordable. *SF*
robotspeak.com | 415-554-1977

SEALE KEYWORKS | Franklin, TN

Gear focus: Vintage electric pianos (Rhodes and Wurlitzer) and Hammond organs, Leslie speakers, and new Nords and Rolands. Acoustic and digital pianos.
What's special: A team of piano technicians is on call for tuning and repairs. The store also rents out vintage electric pianos, organs, synths, and backline. Other piano services include moving and storage; Jonathan Cain of Journey recently had Seale move and store his Fazioli grand while his new studio was constructed. Seale also offers music software as well as repairs on vintage and modern keyboards, and is an Apple reseller.
Lessons: Clinics and user group meetings for DAWs, including Logic, Avid Pro Tools, and PreSonus Studio One. *TB*
615-370-8800 | sealekeyworks.com

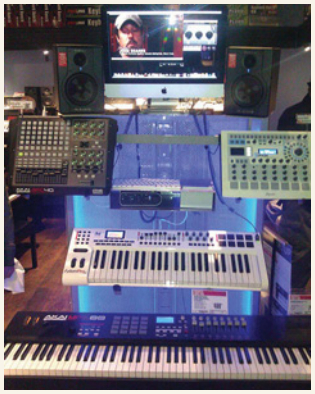
SWEETWATER | Fort Wayne, IN

Gear focus: Virtually every major brand of keyboards, synths, computer audio, software, live sound, and DJ gear.
What's special: The culture. Sweetwater's "sales engineers" have some of the most thorough and rigorous product training in the business, and founder Chuck Surack (who majorly helped put Kurzweil on the map) is deadly serious about investing in and retaining good people. Their yearly GearFest (see page 9) is like a NAMM show for the public. Their huge campus includes a café with WiFi and a free retro video arcade.
Lessons: The Sweetwater Academy of Music offers personal instruction for all ages and skill levels in keyboard, guitar, drums, bass, and singing. A gorgeous new theater hosts student recitals. *SF*
sweetwater.com | 800-222-4700

SWITCHED-ON | Austin, TX

Gear focus: Includes Moog, Korg, Sequential Circuits, and ARP, as well as boutique makers such as Malekko, Bubblesound, and 4ms.
What's special: Austin's headquarters for vintage analog synths, drum machines, sequencers, stompboxes, new and vintage modular gear, software, and controllers also features an in-house repair department that refurbishes all used gear sold; warranty coverage on vintage pieces; a custom modification service; and rentals. Switched-On also builds powered Eurorack modular cases under the Sound Modular name. You can also bring your laptop, MPC, or

Big ~~Bad~~ Good Boxes?



Why mention large chains in a story about independents? Because they too are realizing that it's essential to create a space where musicians want to *be*. At a recent **Guitar Center** grand opening in Emeryville, California, we saw a new software demo station GC is rolling out company-wide: multiple controllers connected to an iMac loaded with software and plug-ins (pictured). "We worked long and hard to make it solid and crash-proof," says VP of Merchandising Bill Wrightson. Also, spacious rehearsal rooms at some locations (see gcstudios.com) each have a full backline, P.A., and Internet, and let you record in stereo. These rent for just $13 per hour, and other rooms host one-on-one instrument and DAW instruction. Likewise, industry stalwart **Sam Ash** is now offering lessons, songwriter circles, open mics, and seminars in everything from synths to DAWs to crowdfunding to DJing at many locations. More info is at samashmusic.com/lessons and samashmusic.com/events. *SF*

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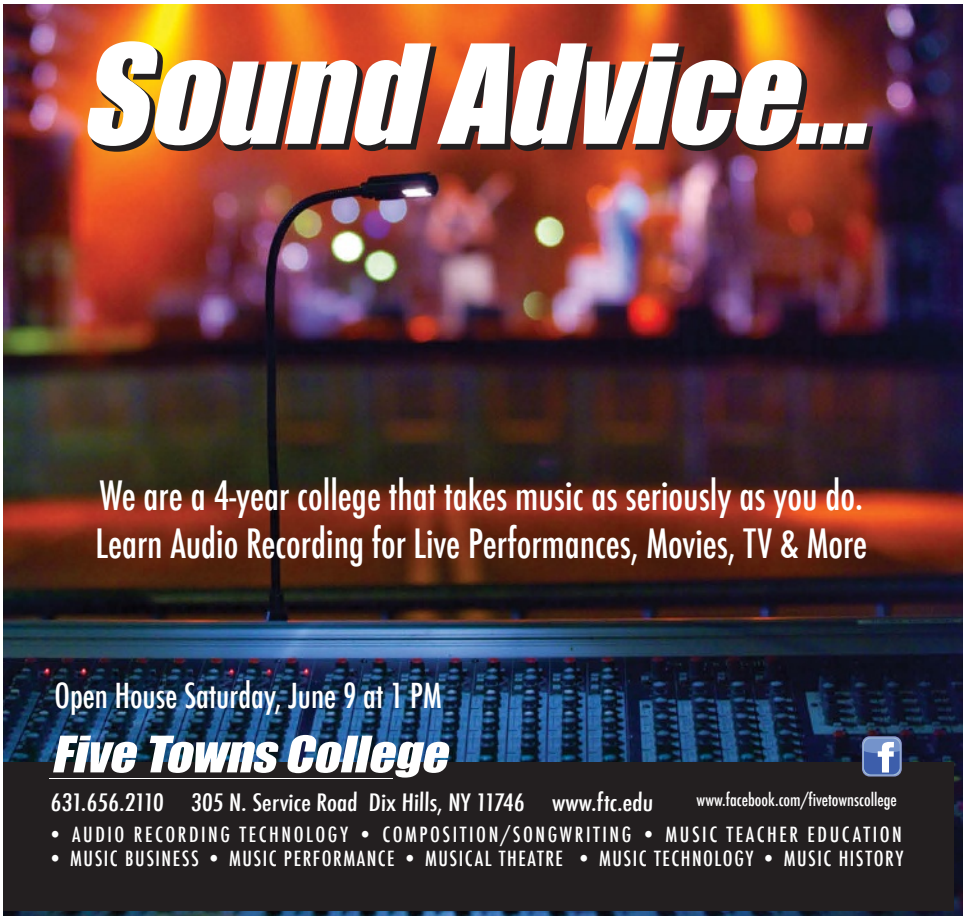

other sampling device and for $25 per hour, sample any of the cool stuff that's in stock.
Lessons: Group classes in everything from live sound basics to hardware hacking. A certified Ableton Live expert leads training sessions. OO
switchedonaustin.com | 512-782-8806

WEST MUSIC | multiple locations in IA and IL

Gear focus: Steinway, Boston, Essex, Yamaha, Cable Nelson, Henry F. Miller, Roland, Kurzweil, Casio.
What's special: West Music focuses on customer education and service, and has six retail locations, more than 170 associates, and a professional audio installation service. They sell everything from drums and guitars to school band instruments, but there's special focus on pianos and keyboards; one store (West Des Moines) is primarily for this. Showrooms display upright and digital pianos surrounded by floor lamps and rugs for a homey feel. The repair department handles warranty work, and it offers one-, three-, and five-year trade-ups on all keyboards: They apply your original purchase price toward up to half of the price of a new instrument.
Lessons: Conservatory with more than 3,000 students (close to 600 for piano alone) and 27 teachers. Programs range from early childhood Kindermusic and the all-ages Weekend Warrior rock band course to summer music camp. During the holidays, the store offers four free lessons when you buy an instrument. There's even a music therapy program, which employs only board-certified therapists and serves preschools, rehabilitation centers, group homes, and correctional facilities throughout Iowa. OO
westmusic.com | 800-397-9378

WEST L.A. MUSIC | Los Angeles, CA

Gear focus: Synths, workstations, arrangers, digital pianos, controllers, portables, and recording gear from most major brands. Korg and Roland recently installed custom demo stations.
What's special: Location, location, location—the epicenter of the film, TV, and record industries. Because of West L.A.'s high-profile customers, they're often first to receive new gear. For example, they recently helped Interscope and Lady Gaga get two of the first production Waldorf Zarenbourg electric pianos. They also do studio design and contracting, from home studios to ground-up builds.
Lessons: Manufacturer product specialists run weekly clinics. Most are free to anyone who RSVPs. Top-call musicians regularly host events as well; recent ones included a drum clinic by Terry Bozzio and bass with Carol Kaye. OO
westlamusic.com | 310-477-1945 ♫

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Artwork - Magnetic Man

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Paul Nagle - Sound on Sound

"**Huge synth tones** that sound great right out of the box."

Asher Fulero - Electronic Musician

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Fig. 1. With the Earthworks PianoMic, we found that a position biased towards the lower end captured the best sound from Jeff Lorber's Yamaha Disklavier DS6.

Pickup Gig

ADVENTURES IN AMPLIFYING ACOUSTIC PIANO

BY STEPHEN FORTNER

ACOUSTIC PIANO IN A LIVE BAND MAKES FOR A GRUMPY SOUND ENGINEER. The basic tug-of-war—adequate volume and clarity of the piano on one end, rejection of feedback and stage bleed on the other—is a factor even in a well-behaved jazz combo. The more rocking the music and/or the tighter the stage, the worse the problem gets. This is a reason that even large tours with significant resources often hide a digital instrument inside a fake grand piano shell. But if it just kills you to leave the venue's nice baby grand covered up as you set up your ROMpler, what do you do?

Piano pickups and specialized mics offer options beyond the old standby of sticking an SM57 or two in the soundholes and pounding the keys because you can't get away with turning the gain up enough. We recently got to experiment with a bunch of them—at least one unit from every maker in the chart on page 44—and document our experience, both here and on video we've posted online.

Methodology

Our roster included a single Barcus-Berry 4000; a single C-Ducer CPM/8 contact strip; a pair of DPA 4021 mics (their more affordable sibling, the 4099-P, is sold *as* a pair and was reviewed in March 2011); an Earthworks PM40 stereo PianoMic; Jeff Lorber's personal Helpinstill 120, which comprises three sensors (bass, mid, and treble) and a mixer box that sums them to a mono XLR out; one each of the Schertler DYN-P and A-DYN contact transducers, which we tried in mono and combined into a stereo pair; and last but not least, a Yamahiko CPS-PF1P kindly provided by George Duke's keyboard tech Andrew Papastephanou, who also proved invaluable in helping run the session. Yamahiko pickups for acoustic bass and guitar have been around since 1987, but it's fairly recently that the piano model has been attracting attention.

Only the Earthworks and DPAs are mics in the most traditional sense, meaning that the sound travels any distance in the air before it reaches them. Only the Helpinstill is a *magnetic* pickup of the sort you'd find on electric guitar, where the strings' vibration affects a magnet and the resulting electrical changes are amplified. The rest rely on direct contact with the soundboard to pick up vibrations—we'll call them pickups because saying "contact transducers" gets old fast.

To capture the exact same performance through every system, Lorber improvised a piece on his Yamaha Disklavier DS6 grand piano, which repeatedly played it back in player-piano fashion with all dynamics preserved. We recorded each of these passes into Pro Tools at 96kHz through API preamps, and also made a reference recording using Jeff's beloved pair of vintage AKG C12As. To test how each mic or pickup handled stage bleed,

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we also did takes of the DS6 playing while Jeff wailed on guitar through a Fender Mustang amp six feet away.

Installation

No product required any structural meddling with the piano, though some are more fiddly than others to set up. The quickest was the Earthworks, a telescoping bar with built-in gooseneck mics. It sits snugly across the grand piano cabinet (see Figure 1 on page 42), and could just as easily hang across the top of an upright. DPA mics include nifty magnetic mounts that let you stick them anywhere on the harp.

The Barcus-Berry goes right on the soundboard, but its pre-applied adhesive wears out after a few uses—keyboard techs carry double-sided tape for securing it. Schertlers stick to the soundboard with included putty that you form into a ring around the bottom side of the pickup disk. You then press the pickup into place until its center just touches the soundboard. The putty is reusable and leaves no residue when removed. Yamahiko pickups are unique in mounting underneath the piano, between the soundboard and one of the piano's crossbeams. They stay in place via pressure, coming with spacer blocks in several sizes that work on grands and uprights alike (see Figure 2 on page 46). They feature four points for the included cabling around their circumference,

	WHAT IS IT?	MONO/ STEREO	NEEDS DIRECT BOX?	NEEDS PHANTOM POWER?	WEBSITE	PRICE (approx. street)
Barcus-Berry 4000	Piezo transducer.	Mono.	Output transformer included.	No.	barcus-berry.com	$250
C-Ducer CPM/8	Flexible contact-strip mic.	Mono.	No.	Yes, or batteries.	c-ducer.com	$350
C-Ducer CPS/8	Dual version of above.	Stereo.	No.	Yes, or batteries.		$650
DPA 4021	Condenser mic.	Mono.	No.	Yes.	dpamicrophones.com	$1,765
DPA 4099-P	Condenser mic.	Stereo (sold as pair).	No.	Yes.		$1,199
Earthworks PM40 PianoMic	Placement bar with integrated condenser mics.	Stereo.	Stereo (XLR) output transformer included.	Yes.	earthworksaudio.com	$3,000
Helpinstill 120	Magnetic tri-pickup system.	Mono.	Yes. Included (also mixes 3 pickups).	No.	helpinstill.com	$550
Schertler DYN-P	Dynamic soundboard transducer.	Mono.	No—has XLR out.	No.	schertlerusa.com	$650
Schertler DYN-GP	Dual set of DYN-P.	Stereo.	No—has XLR out.	No.		$1,200
Schertler A-DYN Set	Active soundboard transducer with preamp.	Mono.	No.	Only if included active preamp is used.		$1,500
Yamahiko Piano Pickup	"Force mode" pickup.	Mono.	Yes. High input impedance recommended.	No.	yamahiko.info	$1,050

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Vocals or Speech

Musical Instrument Amplification

AV Rental

Nightclubs

House of Worship

www.jblpro.com/EON515XT

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Fig. 2. Spacer blocks hold the Yamahiko pickup in place between the underside of the soundboard and a crossbeam. An included measurement tool (inset) gives you a quick visual of which block you need.

so once the pickup is in place, you just plug the cable into the port closest to you.

Jeff's road-proven Helpinstill involved the most setup, with one of the three separate sensors hanging from the harp above the bass strings and the other two snaked below the mid and treble strings. You want the sensor strips as close as possible to the strings without touching, so there's a good deal of adjusting spacer screws, playing to troubleshoot vibrations, and adjusting again (see Figure 3). Once they're in place, though, you get a very full-range sound.

All of these solutions will let you close the piano's lid completely for better isolation from other sounds, and unlike many general-purpose mics, won't invite a visit from the feedback monster if you do so. The DPAs may require careful placement so that the lid doesn't touch them.

Impressions

Nothing here fully eliminates the basic tug-of-war between studio-quality sound and stage bleed rejection, but all mitigate it significantly. Because it's a magnetic pickup, the Helpinstill was best at ignoring electric guitar played in the same room. It did impart a slight metallic sheen to the sound—think of a subtler and more acoustic sounding Yamaha CP70 electric grand. The C-Ducer was easier to place, and had a similar and perhaps slightly more organic sound than the Helpinstill, but was more sensitive to interference from the guitar.

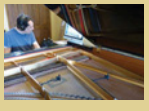
At the opposite end of the spectrum, both the Earthworks and DPA mics were closest to Jeff's AKG C12A pair in terms of the gorgeous, detailed, airy stereo recordings they produced, but were also most vulnerable to the guitar. Keep in mind we had that Fender amp pointed right at the piano, and that they'd still fare much better than general-purpose mics—even and especially studio condensers—on any live gig where you have the time and stage space to take some care with backline placement and stage volume. Sonically, a slight edge might go to a pair of DPAs due to their greater placement flexibility; for live use, the quick setup of the Earthworks makes it preferable for the traveling pianist who wants to carry their own premium mic—like many vocalists do.

It's not hyperbole to say the Yamahiko blew us away. Even in mono, it was closest in sound quality to the AKG mics when the piano played on its own, and also fared surprisingly well in the "guitar test." The Schertlers were no slouches here either, favoring a bit more of the bright harmonics of the piano sound where the Yamahiko favored "body." Schertlers are also quicker to set up than Yamahikos, as they require no getting underneath the piano and can plug straight into a mixer.

None of these solutions are what we'd call cheap, and with the possible exception of the Helpinstill's full-range mono output, you'll ideally want two (or a stereo package like the Earthworks PM40 or Schertler DYN-GP) to do the piano justice—Yamahiko's website even details a dream setup using four pickups. That said, even just one bargain-priced Barcus-Berry gave us a wide and bright enough response to hold up in a rock mix.

These are all just first impressions, and our real purpose is to let you draw your own sonic conclusions. That's why we've posted high-resolution WAV files of our Pro Tools sessions on this month's online extras page. Have a listen and enjoy! ♫

Fig. 3. Jeff finds both tiny screwdrivers and credit cards useful for getting the Helpinstill sensors placed just right.



Hi-res audio of the same piano piece through different mics and pickups, and video of installation and testing at Jeff Lorber's studio.
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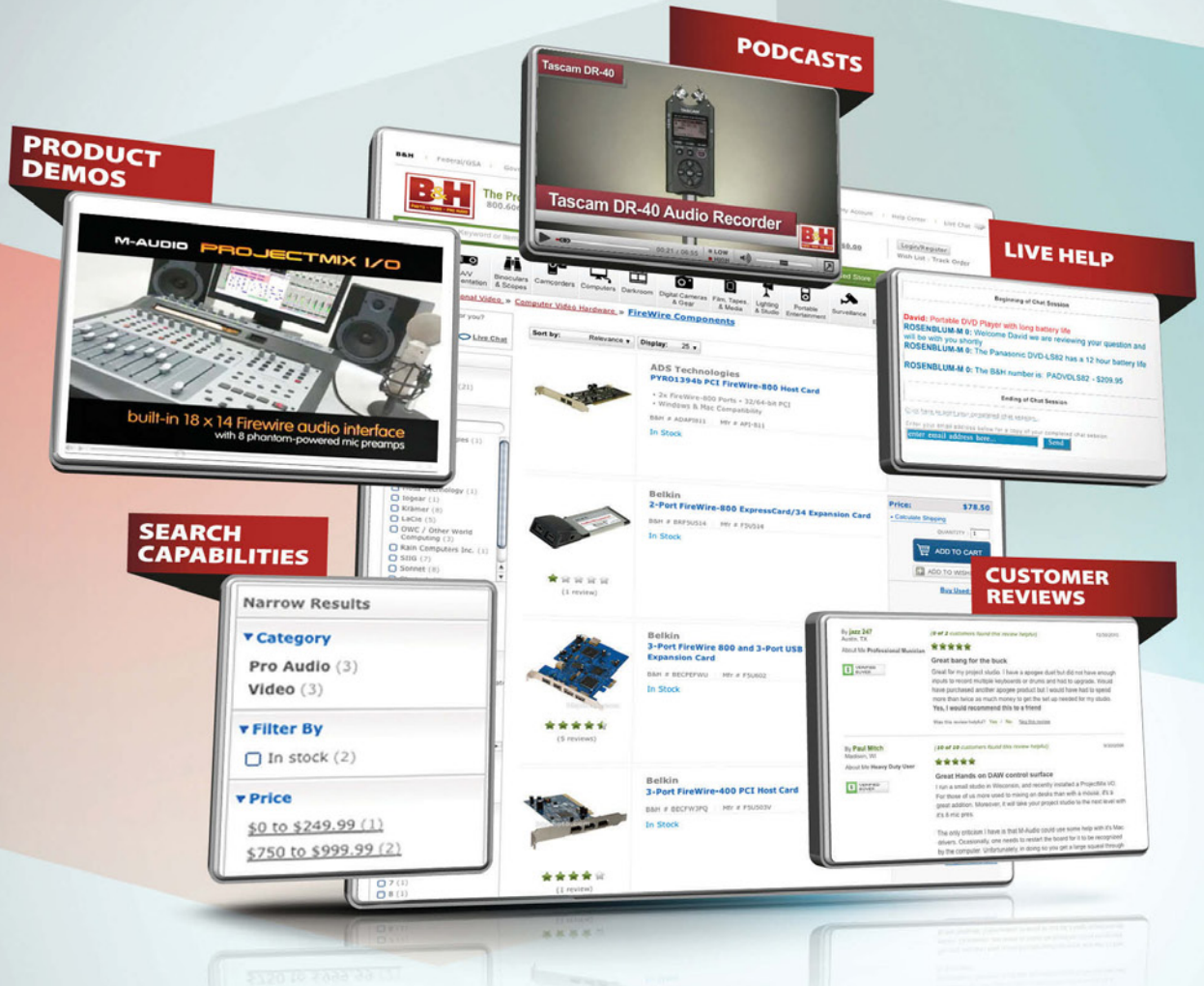

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Fig. 1. A dual-filter configuration on the Korg Kronos. Filter B is highpass, and lets all frequencies through by default. With an assigned MIDI control, I can raise its cutoff "floor" slightly to sharpen my sound.

THE ART OF SYNTH SOLOING

Sweep Dual Filters for Soaring Sounds

BY JERRY KOVARSKY

LAST MONTH WE STARTED EXPLORING FILTER TYPES AND DOING BASIC SWEEPS. I expect that you listened to the online examples and got an aural "sense" of what each filter type sounds like. Now, we can get into further expressive tips for using filters in live performance.

Serial Filters

There's a world of possibilities in sweeping a lowpass filter with differing amounts of resonance. Let's expand on that and add some more character to your sweeps. The trick is to add an additional filter type into your signal chain, which will only be heard when you sweep it with a different controller than whatever you normally use for cutoff and resonance.

How to set this up will vary depending on your synth and on whether you're tweaking an existing preset or making your own. Some synths offer a dual-filter design, with a choice of running them in parallel (the pre-filter signal goes through both filters at the same time—sometimes using one filter per stereo side) or serial (the output of one filter feeds the next). Note that I'm talking about having two completely independent filters, each with their own cutoff and resonance controls. Certain synths offer configurations that combine two filter types in a preset chain, under the control of a single cutoff, but we can't use those for our purposes here.

Assuming a true dual, independent filter design, you want the serial routing. Your first filter would be the usual lowpass, set to your favorite values for cutoff and resonance. The second filter will be a different type—let's try a highpass. (See Figure 1 above.) It's important that the highpass cutoff be set to the *lowest* value, so it's letting all the frequencies pass through. Set like this, you won't initially hear any effect from the highpass—it's just in the signal path awaiting further "instructions." Sweeping your usual cutoff controller (knob, mod wheel, etc.) will only affect the lowpass filter.

Now, you want to set another controller to

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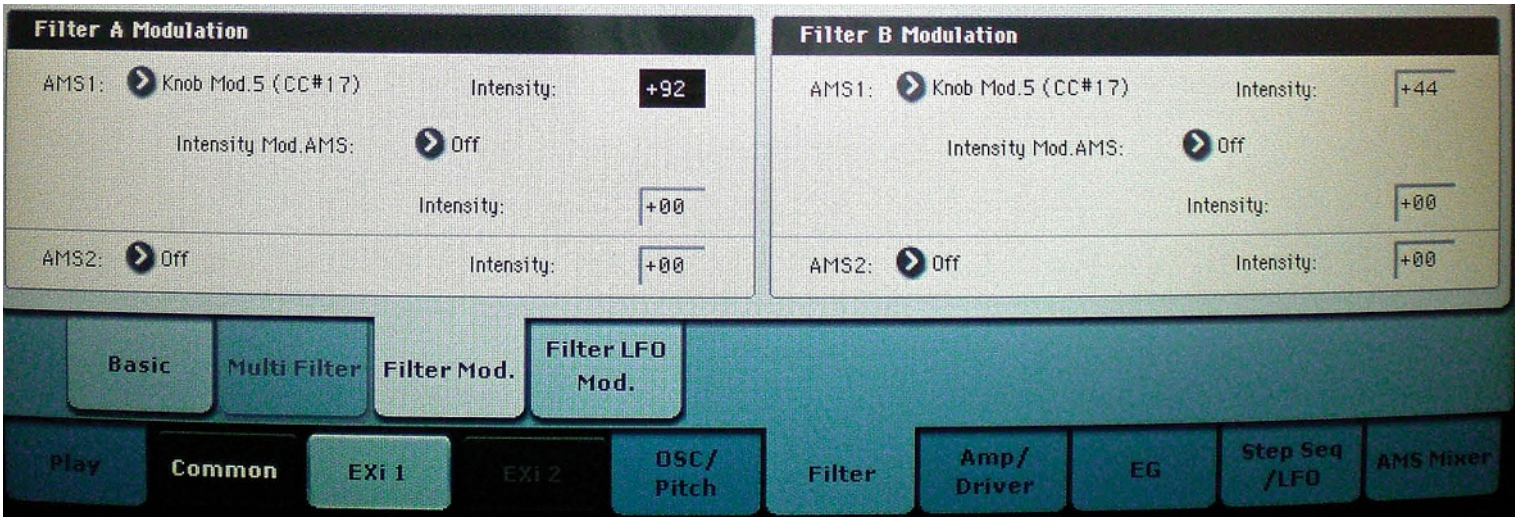

Fig. 2. Here, the same knob (MIDI CC 17), raises the lowpass filter's cutoff a lot (intensity set to +92) as it also raises the highpass cutoff more subtly (intensity at +44). This gesture can further accent my sound even though the lowpass filter might be all the way open.

fully modulate the lowpass cutoff while *slightly* modulating the highpass cutoff. This could be an unused knob or slider, a ribbon or vector joystick—your choice. I like the effect to be subtle for the highpass, just adding some cool timbre-shaping at the end of my controller gesture. So I'd use a low positive value for that filter modulation assignment, maybe 15 to 45 percent. (See Figure 2 above). This way your highpass cutoff starts at zero, or wide open. As you move your controller, you're slightly raising that frequency "floor," which removes some low end from your sound. Go too high and your sound will "thin out" too quickly, likely not cutting through the mix well enough. When it's just right, though, the effect can actually spotlight the mids and highs.

If it's offered, you can also add a little resonance to your highpass filter to help accentuate its effects. Now, you can do your traditional filter sweep from the usual controller, or go to your second controller for a sweep that has a little more character. Alternately, you could dedicate the second controller only to highpass sweeps and interact with both as desired.

After experimenting with this, try changing the highpass to a band-reject (a.k.a. notch) filter type, and using more modulation depth/intensity for how the controller changes its cutoff frequency—around 80 percent works well for me. This adds very cool aural interest to the mid and upper parts of the sweep, precisely when the lowpass filter is fully open and thus has nothing more to add. Setting up a dedicated modulator for a band-reject filter is also fun, as it adds a kind of manual flanger to your sound.

Effect Slot as Filter

How do you do the above when you're using an emulation of a classic synth that didn't offer dual filters? That could be a Minimoog clone, a simple virtual analog design, or a DSP-based synth that's using all of its available filter horsepower to emulate a 24dB-per-octave filter. (Many of my Korg synths do this, for example.) Effects to the rescue!

Since we're focusing on lead synth playing, I'm assuming most of your sounds are monophonic or that you're playing one note at a time. So using a filter *effect* from your synth's effects section, or a separate filter plug-in on top of a soft synth, will work fine even though it doesn't represent a true per-voice filter design. On a synth, all of your sound normally goes through the filter, so use an insert or total/master effect here to do the same. Putting the filter effect on an aux send bus is not desirable, since we want no dry signal mixed in, which would weaken your sweeps. As far as performance control goes, we have the same options as earlier, as virtually all software hosts and hardware keyboards let you map effects parameters to MIDI controllers.

Start exploring this, and next month we'll go even further into other types of effects that will enhance your filter sweeps. Enjoy! ♫

Filter Finder

Here's a partial list of synths and software that give you the tools to set up the serial filter routing from this column.

Hardware synths: Korg M3, M50, and Kronos (Stereo Multi Mode Filter); Roland Jupiter-80 (Super Filter) and V-Synth GT; Yamaha Motif series (Dynamic Filter).

DAWs: Ableton Live (Auto Filter) Apple Logic and MainStage (Auto Filter); Avid Pro Tools (AIR Vintage Filter); Cakewalk Sonar (ModFilter); MOTU Digital Performer (Multimode Filter); PreSonus Studio One (Auto Filter).

Third party plug-ins: Audio Damage FilterStation; Camel Audio CamelPhat; FabFilter Simplon, Micro, and Volcano; Roger Linn AdrenaLinn Sync; SoundToys FilterFreak; U-he Filterscape; Waldorf D-Pole.

SOUNDCLOUD

Compare a standard lowpass filter sweep to Jerry's lowpass-plus-highpass technique. Can you hear the difference?

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Make a Top Loop Out of Anything

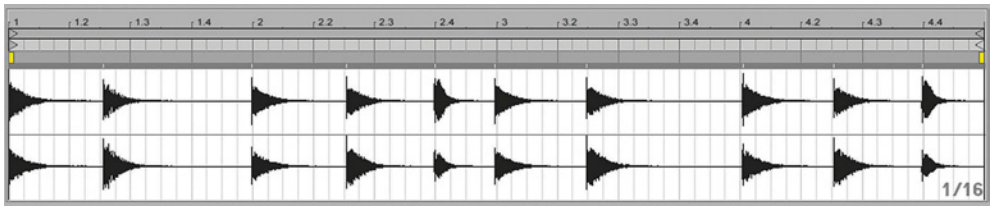
BY FRANCIS PRÈVE

HI-HATS, SHAKERS, AND TAMBOURINES ARE ALL ESSENTIAL ELEMENTS FOR A "TOP LOOP." THAT IS, the treble percussion in a drum groove. While these are time-tested elements for adding shimmy and shake, you'll set your tracks apart by creating unique top parts that augment or even replace these classic elements.

Here's a simple trick that lets you turn virtually any audio into a top loop, using the filtered delay plug-ins that come with almost every DAW. Sometimes these are vintage tape delay emulations—Logic's Tape Delay is a good example, with high- and low-cut sliders for tailoring the frequency response of the echoes. We'll use Ableton Live's Filter Delay to demonstrate the technique.

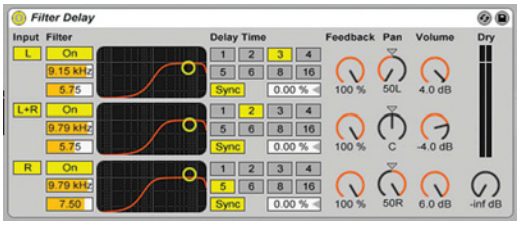
Step 1.

Grab a loop for your source audio. It can literally be *anything*: rock drums, Foley effects, guitars, even your cat, because the magic happens through the delay. Pitched instruments will impart more tonality.



Step 2.

From there, add the Filter Delay, select your delay times, then set the delay EQs to emphasize the high frequencies and turn the feedback up to between 90 and 100%.



Step 3.

Create an audio track to record the result, using Ableton's Resampling feature. To capture the audio, just solo the delayed track and set the Resampling track to record. Play the loop for a while to build up the high frequencies, then stop the loop and record the feedback tail to the new audio track.

Step 4.

Now, using Live's Auto Pan device (set to mono, by turning the phase to 0), you can add a sidechain-like bounce to your delay loop. Note that when using the sine wave LFO, you can adjust the groove by tinkering with the Offset parameter. For a standard quarter-note bounce, set it around 90°, give or take 10°.

Step 5.

Alternately, you can create a chopped eighth-note effect by changing the LFO waveform to a sawtooth, then adjusting the Offset and Shape parameters. ♫

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BRYAN TURNER PHOTOGRAPHY

CLEAN UP YOUR ROOM!

Part 1: Digital Room Correction

BY MARTY CUTLER

EVER WONDER WHY YOUR MIXES—WHICH SOUND SO GOOD IN YOUR HOME studio—sound like muddy swill when you play them back somewhere else? Where's the beef? What happened to the definition in the high end? Why did that big stereo image collapse into sounding like it's inside the cardboard box your studio monitors came in?

The Problem

The answer is that no matter how painstaking your recording process, and no matter how great your mics, preamps, converters, synths, and monitor speakers, the mix can only be as good as the decisions you make based on what you hear. In turn, what you hear is affected by what your room does to the sound.

Unless your space was purpose-built for acoustic accuracy, that's usually not good. Decisions that sound right enough in your studio—say, how much low end you put in the bass track or how widely you panned that stereo synth—won't necessarily translate well to car stereos, headphones, and other environments.

The sonic culprits are many, and without turning this into an acoustics lecture, there are two approaches to the problem. You can pre-emptively tweak what's coming out of your speakers to compensate for how your room is about to mess it up, and/or you can address the room physically. The former is room *correction*: technology that analyzes the "as-is" frequency spectrum in your space, then applies corrective EQ. The latter is room *treatment*, and can involve bass traps, acoustic foam, diffusers, speaker isolation pads, and other such materials.

Most real-world creative spaces are problematic enough that some combination of both is ideal. In this issue, we'll examine digital room correction systems from IK Multimedia, KRK, and JBL. Next month, we'll look at strategies for using the broad range of room treatment panels and products on the market.

IK Multimedia Advanced Room Correction (ARC)

$349.99 list | $199.99 street | ikmultimedia.com

IK ARC's measurement mic and room analysis screen.

Like all solutions in this roundup, IK's ARC includes an omnidirectional condenser mic for sampling your room and standalone room analysis software. What sets ARC apart is that other than the mic, it uses no dedicated hardware. You insert a plug-in on the master stereo output of your DAW, and based on the room analysis, it corrects the audio *as* you mix. When done mixing, you turn the plug-in off before bouncing to disk or summing to your stereo medium of choice.

Calibrating ARC is simple. Plug into a mic input on your interface and point the mic skyward on a stand. After performing a few simple level adjustments, you're ready to sample your room.

Naturally, you want the mic to listen from the same spot you do, but ARC aims for a broader sweet spot. You start by placing the mic at ear level, in the center of your optimum seated position between your monitors, and then at random spots nearby. The software sends audio impulses from the left speaker, then from the right. You must take at least a dozen samples before you can store an analysis, but IK encourages 16 or more. I took 20 samples, loosely describing a concentric, elliptical area around my listening post on my first pass, and 30 on a second, wider sweep.

The plug-in window shows color-coded contrast between untreated audio, a target correction, and the actual frequency response post-correction. From this, it was easy to tell that my room needed help with dips at 70 to 100Hz. ARC's corrections were less drastic on the left channel, likely due to the placement of my manual-packed bookshelf, which absorbed low-end distortions caused by standing waves. A couple of spikes existed around 200 and 220Hz, and again, this was more pronounced in the right channel—which made a strong case for moving my whole setup leftward for better symmetry between channels.

Different EQ curve presets are mostly useful for auditory perspective, but you can also use them to roll off highs and mids in rooms that may overemphasize those frequencies. As always, play some of your favorite mixes through the plug-in to arrive at a setting that works best for you. After A/B comparisons on the same material, mixes through the second analysis had more detail across the frequency spectrum, more discrete imaging, a better-defined low end, and clear transients—so clear, in fact, that the annoyingly uniform picking transients on a sampled guitar sent me back to my sample libraries in search of a new instrument. That's the kind of thing I otherwise might not have caught until I'd finished a mix and was listening outside my studio.

Because ARC relies on just two software components and the provided mic, it's the most mobile compared to the KRK and JBL products, which use proprietary interface and control surface hardware in addition to a mic. Additionally, you can save as many analysis files as you'd like, which is ideal if you work in different rooms.

Just as we went to press, we learned IK was about to release a new version, ARC System 2. Though we haven't tested it yet, we know it increases the number of EQ bands fourfold (tightening the bandwidth of each to 10Hz, compared to the current 40Hz) and promises to require fewer measurements to produce an accurate analysis.

KRK's system stores its room profiles in the hardware. The only software is a control panel for its audio interface functions—there's no plug-in or graphical EQ curves to deal with.

KRK ERGO

$799 list | $499 street | krksys.com

ERGO stands for Enhanced Room Geometry Optimization. Home studios tend to be squares or rectangles, and sound waves bounce off parallel walls, boosting or reducing reflected frequencies. Because of the nature of low frequency waveforms, which need more physical space to develop than higher ones, they can lose focus, especially in small rooms.

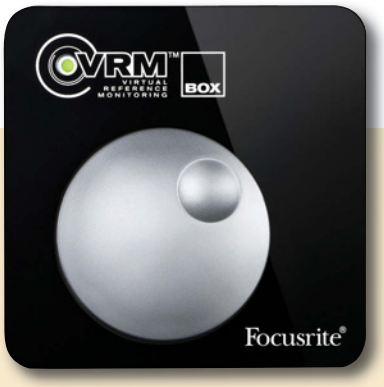
ERGO operates on the premise that the most troublesome frequencies dwell from 20 to 500Hz. KRK claims that their room correction is "almost insensitive to broadband background noise." The fact that I achieved virtually the same calibration results during a period of heavy outdoor traffic and during quiet, early morning hours tends to bear their claim out, making ERGO ideal if you don't have a space that's sonically isloated from the outside world. ERGO works well with any studio monitors, not just those made by KRK.

KRK includes a proprietary measurement mic (it uses 15 volts for phantom power, not the usual 48) as well as a 24-bit/96kHz FireWire 400 audio interface and a four-pin adapter to fit the port many laptops use. (USB would be a better call for a future version, given trends in consumer electronics.) ERGO saves its room analysis data in the hardware unit, and you're limited to analysis for each of two monitor systems. You can always overwrite the memory if you need to record in a different room, but as the analysis can take nearly half an hour, it would be handy to be able to store more data files offline. It would also be a plus if, like the other packages, ERGO produced a visual graph of its findings.

ERGO gathers its data starting with the engineer's ear-level perspective. You then do a number of sweeps of your room from random vantage points, until the system acquires what KRK calls "room knowledge." Whereas ARC required a close, elliptical pattern of measurement spots, KRK encourages mic placement anywhere. The result is a pair of data files: one representing the near-field position, and another with a much broader sweet spot. A button switches between the tight focus, the broader image, and bypass. The broad (called Global) image is useful if you have clients in the room, but I'd stick with the focused one for a critical mix.

The dedicated hardware lets ERGO double as a monitor control module; you can hook up either a 2.1 system or two stereo pairs. If your recording needs are relatively simple, you can use it as your main audio interface: You get a couple of line-level 1/4" inputs, and that's about it. You can also can pipe your main interface through the ERGO's S/PDIF digital audio input and enjoy its room correction capabilities. The system has balanced 1/4" line outputs for your active monitors or studio power amp. I'd have preferred XLR outs as well, but still, this is one clean, sweet-sounding interface.

As promised, the bottom end of my mixes went from boomy to tight, with more focused bass; punchier, balanced kick drums; and even improved definition for pad parts and drones dwelling in the lower frequencies. Mixes translated nicely between studio, home hi-fi system, and car stereo.



Focusrite VRM

To quote *The Shining*, one way to "correct" a room is to eliminate it. That may not be the primary purpose of Focusrite's VRM (Virtual Reference Monitor) Box, but it's cerainly a benefit of this nifty little D-to-A converter/headphone amp/speaker simulator. You can place any of 15 pairs of virtual speakers (including KRK, ADAM, and Yamaha NS-10) in one of three spaces (studio, living room, or bedroom), and immediately hear the effects on your mix. Whatever lab-coat geekery Focusrite put into the modeling pays off: I experienced fewer stereo placement issues that I normally do when mixing on headphones. For our purposes here, the simulations' accuracy is less important than their diversity: The more of them you get your mix sounding good through, the better it will translate outside your studio. Obviously, you want accurate headphones. I've been using Audio-Technica ATH-M5Os with good results.
Stephen Fortner

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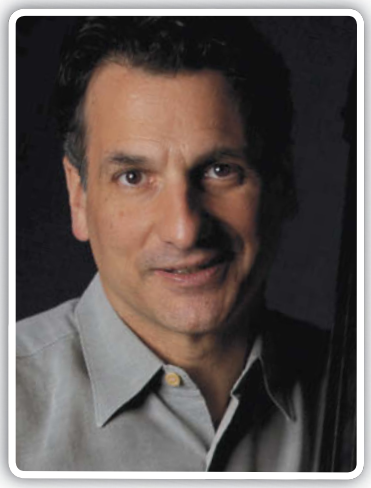

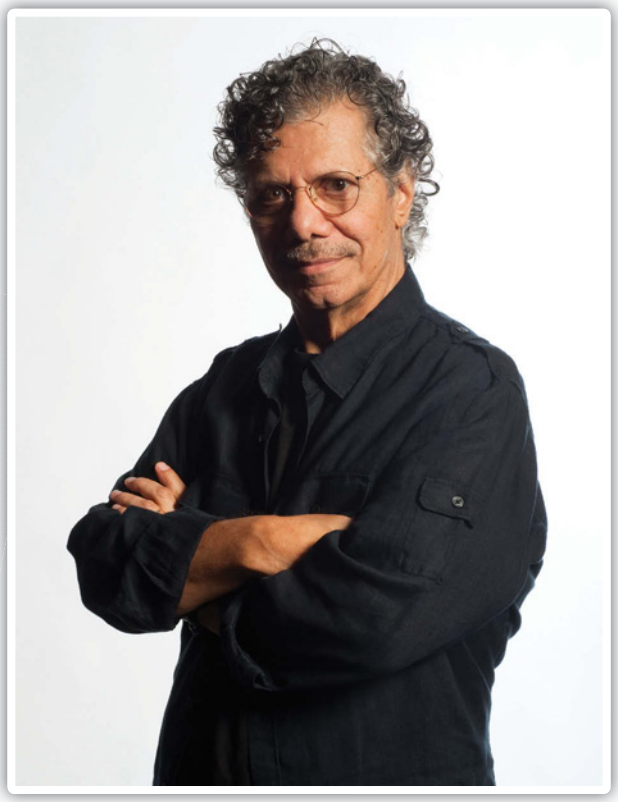

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JBL MSC1

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The JBL hardware (left) and software console (right), showing a graph of the author's room response.

MSC stands for Monitor System Controller, and indeed, JBL's offering is both a room corrector and a monitor volume control/switcher that can handle two pairs of speakers, a subwoofer, and three input sources: two on 1/4" balanced ins and one (such as an iPod) on unbalanced RCA jacks. For our purposes, the relevant acronym is RMC: Room Mode Correction. MSC1 aims to isolate any issues typically in the low frequency range of your room, and applies customized filters based on its findings. Of the three packages, the JBL system's room analysis process is inarguably the most detailed—and the most complicated. JBL supplies a proprietary calibration mic and the requisite cabling.

The USB port is only for talking to the included MSC software—unlike the KRK ERGO, the JBL is not an audio interface itself. For that reason, room analysis requires a specific wiring setup whose oddest routing is from the *headphone* out on your audio interface to the RCA ins on the MSC1 box—this is the only path taken by the test tones used for room analysis. We get it—JBL is being inclusive of audio interfaces (and internal sound cards) that may have only stereo main outs plus a headphone jack. You don't have to leave it this way when mixing through RMC, only when performing the analysis itself.

Setting out to do just this, I heard fluctuating low-level noise, which sent me around the room chasing the cause. Not surprisingly, the wiggle factor of the cabling I'd cobbled together for the required routing (1/4"-to-1/8" adaptor plug in the headphone jack of my MOTU 896 interface, then 1/8"-to-stereo-RCA Y cable) was to blame. The measurement mic also connects to the MSC1 via a 1/8" jack. Balanced I/O and pro connectors for the test tone path and mic would add cost, but would resolve such issues.

The MSC1 software uses animated diagrams to walk you through the multiple setup stages. The first of these is a preliminary calibration of your system, including your audio interface. This involved reconfiguring audio I/O in order to analyze the inner workings of my MOTU 896. The process was a bit fiddly, but fortunately, you don't have to repeat this part of it unless you change audio interfaces. Once completed, you set up gain-staging between your interface, mic input, and speaker output. Only then are you ready to "shoot the room." There are a few variables, including the mic input gain knob on your interface; the MSC1 itself provides a large volume knob and and input trim.

Now, set the mic at ear level, click the start button, and get out of the way quickly and quietly—I had five seconds before my speakers produced a raft of organ-like tones. The MSC1 performs just one sweep consisting of a series of tones from left and right monitors. This takes about ten minutes per side, but unlike the other products, doesn't involve moving the mic around the room.

The MSC1 software won't complete the calibration without peace and quiet; even a little noise returns you to the gain-staging phase. My studio has a window facing a well-traveled street, which necessitated moving my test sessions to late evening. When things were perfectly quiet I tried again, but gain-staging that made the software happy still took some time to get right.

I found the now familiar low-end problems in the 70-to-100Hz range; my room is what it is. The results were similar to my measurement with the other systems, with the MSC1's added benefit of sweepable EQ for lows and highs. (For midrange to upper frequencies, you get a plus or minus 3dB shelving EQ ranging from 2.5 to 17kHz.)

Conclusions

None of the products we've auditioned are magic fixes; you'lll still have to EQ, compress, adjust levels, pan … you know, mix. Room correction simply helps you make better decisions. If you've followed the room analysis procedures to the letter, any of the above products will dramatically reduce bass issues and frequency response problems endemic to tight spaces with parallel walls. The EQ-based nature of room correction, though, may not resolve other issues such as flutter, ringing, or coupling between your monitors and the desk they're on. We'll discuss physical room treatment next month, as well as integrating the digital and physical approaches. See you then! ♫

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CASIO XW-P1

BY KEN HUGHES

WHAT IT ISN'T: AN ANALOG MODELING SYNTH, THOUGH IT PROCESSES sampled analog waves (and plenty of digital waves, too) through a well-rendered DSP simulation of analog filters. It isn't a workstation, though it has intriguingly powerful multiple sequencers, one of which can even control external sound sources. It isn't an arranger, though it can trigger sequences and arpeggios from keystrokes the way an arranger can.

Keyboard K KEYBUY AWARD

What it is: a highly impressive, versatile, powerful, fun instrument that can work itself into all kids of gigs. The XW-P1 has plenty of raw materials to fill a weekend warrior's needs, whether those weekends are spent in bars, clubs, hotel lobbies, art and wine festivals, or churches. Minus the six D batteries you'll need if you don't use the included AC adapter, the XW-P1 is just a little heavier than your guitar player's favorite Les Paul. A non-skid pad at the right end is ready to hold your iOS device. In our tests, cell phone proximity induced no noise in the synth's output.

Sound

Pure electronic sounds—analog and digital—are the XW-P1's first foot forward. Warmth isn't lacking. In fact, there's so much energy in the low mids that I wondered whether Casio applied a fixed EQ curve at the output stage. Whatever the case, boatloads of synth waves are available. You see "CZ" a lot as you scroll through them, and fair enough—Casio's vintage CZ synths are only now being properly appreciated. "MG" and "JP" waves announce their origins loud and clear as well. They run through *nine*-stage volume and filter envelopes, which can be clock-triggered in addition to note-triggered. The samples are short-ish, and some of them loop awkwardly in the top octaves. Others alias quite obviously when you use the pitch-bender. Now, the success of Casio's Privia stage pianos proves that they can capture high-quality wave data and assemble it into musically accurate sounds, so these anomalies must have been included intentionally. Lo-fi samplers like the Ensoniq Mirage and Casio's own SK series trade briskly online today, so perhaps Casio is after some of that mojo. The fact that preset 0-0, "XW SoloSynth," whistles and whines like there's no tomorrow proves they've embraced "rude." The dark side of rude? Sweeping parameters with the four knobs often reveals audible stepping; no smooth filter sweeps.

Hex Layer mode, as its name indicates, lets you layer up to six sounds. These have to be from the PCM bucket; the Solo Synth or Drawbar Organ modes are off limits. But you can still get plenty fat, and—somewhat shockingly on a modern synth—even overload the output bus if you want: Push all six layers to the max using the realtime mixing sliders, and call yourself Cap'n Crunch. Bug or feature? Who cares? I like it.

Here's a gonzo feature I've not seen on any other keyboard lately: the ability to run everything through the same resonant lowpass filter and DSP effects at once. Yup—drums, arpeggiated or sequenced riffs, the sound you're playing live, everything. In Performance mode, the mixer screen shows the option "mixer all." Pick this, and the DSP effects applied will be those active on the current Solo Synth sound—plus that sound's

Snap Judgment

PROS Very good synth and acoustic sounds. Flexible and capable arpeggiator and sequencers. Does pretty and ugly equally well. MIDI over USB and 5-pin MIDI can be addressed separately. Lightweight and inexpensive.

CONS Display is Casio's best in a while but still limited. Aliasing and grunge on some synth sounds won't be to everyone's taste.

Bottom Line

The price of entry into serious standalone pro keyboards hits a new all-time low.

$699.99 list | $499.99 street
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filter settings. This is great for DJ- or remixer-style mangling of the entire mix.

Samples of acoustic and electric (non-synth) instruments abound as well, and they're very good. For gigging or composing, the acoustic and electric pianos are far more than good enough. Drums, basses, guitars, accordions, winds, brass, strings—name it, it's here, and it won't give you General MIDI-itis.

A word about the DSP effects would have to mention the four-band parametric EQ, swimmy chorus, aggressive flanger and trippy phaser, serviceable reverbs (they sound a little metallic and less diffuse than I'd like, but they'll do), distortion from subtle to ravening, and Edge-from-U2-worthy delays. They don't match Motif/Fantom/PC3 quality, but then, they live in a keyboard that streets for $499.

Quarter-inch mic and instrument jacks appear alongside a stereo mini jack. Any of these—one at a time—can be routed through the XW-P1's filter and effects. You can even trigger the filter envelope with the audio input.

Drawbar Organ

Clonewheel sound and functionality is much improved over the last Casio we tested that had it, the WK-7500 (reviewed June '11). The XW-P1 offers all eight volume levels per drawbar as opposed to the WK's three, and they update in real time. There's also a more realistic simu-Leslie with tonally improved (but still overcrisped) distortion. Convincing vibrato/chorus is still missing, but if you're not a B-3 tone obsessive, this organ is good. Using it onstage wasn't quite one of those "Yesss!" moments, but I was humbled by how well

Key Info

POLYPHONY 64 voices.

SYNTH TYPES Monophonic analog-style solo synth, 400 PCM-based polyphonic sounds, drawbar organ mode. "Hex Layers" can consist of up to six PCM sounds.

SEQUENCING Phrase sequencer, 13-track Step Sequencer, and polyphonic arpeggiator.

WEIGHT 11.9 lbs.

it held up in the mix. It'd be nice to be able to put custom drawbar sounds with rotary effects into a Hex Layer, but there is a workaround: Choose an organ wave from among the presets for your Hex Layer. You can easily get that icy Pink Floyd organ layered with whatever you like.

Arpeggiator and Sequencers

Yes, as in plural, and we'll start with the arpeggiator. A hundred preset arpeggio patterns and another hundred locations for user arpeggios nullify any objections about variety. Step-type arpeggios can contain up to 16 steps, and can be set to start from the lowest note played, highest note played, or they can play with up to five-note polyphony. You define notes in the pattern by how many semitones they are away from the note you play on the keyboard, and each step's velocity can be specified. You can also specify the "step size" or note value: quarter, eighth, eighth-note triplet, sixteenth, sixteenth-note triplet, and 32nd. Further, you decide the length of the note sounded within each step, from 100 percent of the note value to 50 percent.

The Step Edit screen is pretty painless, but here's a place where you're aware you're working with a $500 keyboard rather than a $2,000 one: There's no graphic of what's going on, just a list, so you'll need to know the tonal center of your riff and how many semitones away each step should be. That, or use the eight sliders to edit step values directly; a button toggles them between steps 1-8 and 9-16. You can turn the steps themselves on or off using the 16 buttons above the nine sliders. Lit buttons indicate active steps. Arpeggios can hold upon key-up or start and stop (and sync) with the Step Sequencer (more on that in a bit). Overall, it's not totally unlike working with a vintage groovebox or analog sequencer.

Then there's the Phrase Sequencer, which the manual calls a scratch pad but is usable in lots of other ways. It records input from the pedal, wheels, and knobs in addition to keystrokes, and can do so in multiple passes in overdub mode. Again, 100 preset phrases and 100 user phrases of up to 1,600 notes each offer you lots of variety. Odd meters are supported; wildly, whether you're an electro-pop disciple, a Dave Brubeck fan, or a prog monster, the XW-P1's Phrase Sequencer will accommodate you.

Wait—there's more! The Step Sequencer uses the scheme Roland more or less invented for the TR-808. You get nine tracks for instruments and four for recording MIDI controller moves; you can apply each control track to your instrument track of choice, and steps can play melodic notes as well as drum hits. You can also choose the MIDI out *per track*: USB, five-pin, or both. Anyone making electronic dance music doesn't need me to tell them that messing around with this is just as fun as it is on a TR-808, and our resident EDM expert Francis Prève agreed: "Used in conjunction with the drum grooves, the Step Sequencer delivered really cool results right off the bat."

The Step and Phrase sequencers can run together, and although they're clock-locked, they're not necessarily beat-locked, meaning you can trigger a phrase from the front-panel button or a keystroke while the Step Sequencer is playing, whether it's "in time" or not.

In Use

A weekend worship gig brought the XW-P1 into a rig that includes a Roland RD700-GX, a Korg BX-3 organ, a MicroKorg, sometimes Logic/MainStage, and sometimes Reason. The XW-P1 did not embarrass itself in the company of all these other instruments.

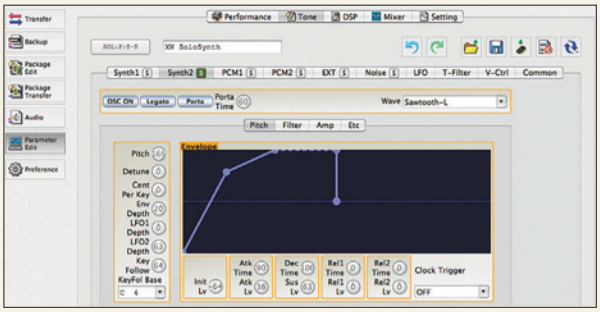
I needed a mono lead with a ghosted, overdriven pad behind it and a tempo-synced delay. Hex Layer mode let me nail it, and the Tap Tempo button let me match the drummer's count-off. Another tune wanted a warm pad, and rather than going to my usual on the RD-700, I Hex-Layered an impressively fat analog pad with Prophet-like character, a couple of detuned sawtooth patches mixed really low, something that was surely Fairlight's "ARR" sample, and a PWM sound low in the mix that animated against the two detuned saw sounds. It was flat-out gorgeous.

It's funny—the slight opacity of the interface (compared to workstations at four times the price or more) made experimentation more fun for me, and reminded me of the hours I once happily burned peering into the displays of my Ensoniq ESQ-1 and Roland W-30.

Working with the preset drum kits and patterns, electronica producer Francis Prève was able to quickly customize a groove by turning steps on and off and nudging the sliders, which changed the drum sample assigned to the various steps. Moving the master slider changed all of the drums simultaneously. "For grooves with a world or tribal flavor, the Step Sequencer delivers instant inspiration," he observed. "For synth riffs, there's a bit of a learning curve, but you'll get results you wouldn't get using standard sequencing techniques."

Conclusions

The XW-P1 is a provocateur that offers a compelling argument for spending *less*. Casio says they had the Korg PS60 (reviewed Oct. '10) in their sights. I get it—Hex Layer mode in particular is similarly useful. But the PS60 doesn't have multiple sequencers, a true drawbar organ mode, or audio inputs. This seems like Casio's first salvo in a new assault on pro keyboard territory. If this is any indication of where they're headed, look out. The XW-P1 is a clear Key Buy for its excellent sound, solid arpeggiator and sequencers, delightfully insane ancillary features, light physical weight, and low price. ♫



Software Editor

We got an early look at Casio Data Manager 6 while it was still in beta. It looks to be a great resource for programming and shuttling data between XW and computer. I'd have been happier to be able to edit sequences in addition to the synth parameters shown here, but no dice—yet.

SOUNDCLOUD

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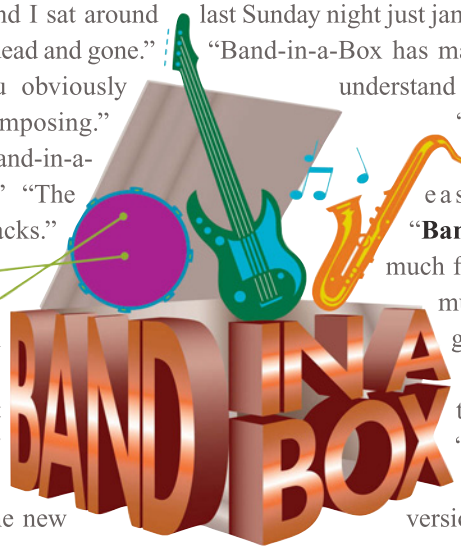

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ROB PAPEN Blade

BY JIM AIKIN

IN MUSIC, YOU NEED TO CHOOSE THE RIGHT TOOL FOR THE JOB. FM SYNTHESIS is great at crisp detail, samples are great for realism, analog is great for fatness, and additive synthesis is great at swirling animation. Sure, you can do "fat" with an FM synth or "animated" with analog, but that's the big picture. Rob Papen's Blade does additive. It completes the lineup next to Predator (virtual analog), Blue (FM), and Punch (modeled and sampled drums and percussion). Blade has plenty of supporting features, including a multimode filter, effects, and a flexible arpeggiator, but its additive engine is where the action is.

Overview

Additive synthesis is a powerful technique. Ultimately, you get individual control over each partial in the frequency spectrum of the sound. Trouble is, that's a lot of partials. Nobody wants to go crazy adjusting hundreds of envelope parameters. So the folks who design additive instruments always give the user high-level "macro" controls. These controls shape the sound in useful ways, without inducing tweakaholic paralysis.

Blade's oscillator is called the Harmolator. It's ridiculously powerful, as you're about to discover—but to get the bad news out of the way, there's only one. Some other synths, such as Camel Audio Alchemy (which costs about twice as much) let you crossfade between two or more additive sound sources in a single preset.

Blade's resonant filter has 14 possible modes, including various rolloff slopes. Stationed before the filter is a per-voice distortion stage for beefing up the tone. The distortion has 20 different modes and a couple of knobs. The filter output is stereo, with a separation knob that offsets the left-side cutoff frequency from the right, again for a richer sound.

Blade has five envelope generators, each with an extra sustain fade time knob. There are four LFOs: one for the Harmolator, one for vibrato, and two general-purpose. Four general-purpose modulation routings are available, plus two more just for the Harmolator, plus two more for the effects. The two effect processors have a choice of 25 algorithms, each with its own set of controls.

The most important and interesting feature of Blade is the X/Y Pad. By clicking and dragging, you can record a two-dimensional modulation curve. This curve has separate X (horizontal) and Y (vertical) outputs, each of which can control numerous parameters in the Harmolator and filter. X/Y pads that record mouse moves aren't exactly new—Native Instruments Reaktor has had them for years. What's unusual about Blade's pad is that you can edit your curves (graphically, of course) after recording them. Each sound preset stores only one curve, but if you need more kinds of control over the Harmolator, MIDI controller data can fill the gap.

Blade's user interface is easy to work with. Hovering the mouse over any knob displays its current value in an info bar near the top of the panel, and double-clicking a knob centers it. Single knobs or entire modules can be switched on or off with a single click. There's room for a bit of improvement in the preset manager, which has no way to mark favorites, and organizes the banks of presets by the author of the sounds rather than by type (bass, arpeggio, etc.), thus making it needlessly difficult to find what you're looking for.

Snap Judgment

PROS Amazing range of tone modulation, including recordable mouse moves. Excellent arpeggiator.

CONS Only one additive oscillator. Harmonics can't be detuned.

Harmolator

If you're new to the theory of harmonics, you may find the Harmolator tough to grasp. Briefly,

anything our ears hear as a single sound can be analyzed as a stack of sine waves, each with its own frequency and amplitude envelope. There's a basic pitch, and other sine waves in the stack are called partials. When the frequencies of the partials are whole-number multiples of the basic pitch (the fundamental), we call them harmonics. [*A sine wave is a pure tone with no harmonics of its own, and sounds like an oversimplified flute. In fact, the drawbars of a Hammond B-3 organ do very basic additive synthesis, with each controlling the volume of a sine wave. —Ed.*]

Yes, the Harmolator produces harmonics, and no, you can't detune the partials to dissonant, non-whole-number multiples, but there is a Spread knob that creates two or three identical Harmolators and detunes them from one another. A "Sub" knob can introduce a sine or sawtooth sub-octave, which you can also tune up or down by a perfect fourth or fifth. Blade also has chord memory, which is perfect for those techno-trance minor-seventh chord stabs.

The Base knob chooses the loudest harmonic, and the Range knob controls the width of the spread around the base. You can think of these two knobs as operating like a bandpass filter, with the Base controlling the center frequency and the Range the bandwidth of the filter. The Symmetry knob "tilts" the range toward the higher or lower harmonics.

The Timbre knob works with the Timbre Type menu. The menu has 78 types (frequency spectra) that boost or cut various combinations of harmonics. The higher the knob, the more the sound will change when you choose a different type from the menu. The Even/Odd knob is a similar but more basic control, attenuating either the even-numbered or odd-numbered harmonics.

The Harmonic Shift knob introduces a secondary portion of the spectrum, which can be shifted up or down from the Base frequency. There's a knob for the volume of this secondary spectrum. Just before press time, I got a sneak peek at the Spectrum display (see Figure 1 on page 66) that's being added to the 1.0 release.

Bottom Line

Powerful tools for making rich sounds with additive synthesis.

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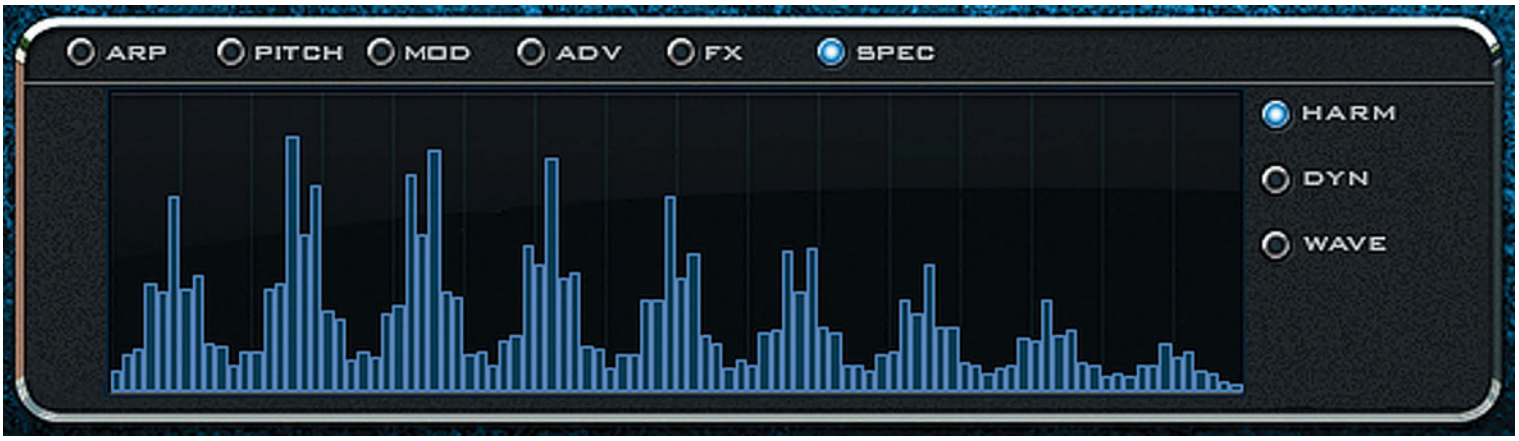

Fig. 1. The Harmolator produces up to 96 harmonics, which can be displayed in the Spectrum panel. Other panes show realtime results of modulating the Harmolator, and the waveform produced by the current harmonic spectrum.

This gives immediate graphic feedback on what happens to the harmonics when you twiddle the knobs, which is extremely helpful.

The X/Y Pad

The idea of the X/Y Pad is simple, but the feature list is long. Until you understand the Harmolator, the controls in the pad won't make a lot of sense, though you may discover cool sounds just by twiddling knobs.

The central area is a record/playback surface for a two-dimensional modulation shape. You can record this shape by clicking the record button and dragging with the mouse, or by choosing a shape (circle, square, line, or spiral) from the right-click menu. If you use the mouse, Blade will record not only the shape of your moves, but the speed changes, so you can mix fast, jittery movements with long smooth ones in a single curve. As the sound plays, an animated blob on the X/Y surface will move around, showing you the current position.

For both the X and Y outputs, you can modulate up to 12 different sound parameters in various positive or negative amounts. Nine of the parameters are on the Harmolator: Base, Range, Timbre, Even/Odd, and so on. The other three are filter cutoff, filter resonance, and output volume.

The X/Y shape can play back once per note or looped (with either one-way or back-and-forth looping). Each note can have its own instance of the shape playing back, in which case you'll see as many animated blobs as the notes in the chord you're playing, all chasing one another across the surface. Or, the X/Y pad can operate monophonically, so that all of the voices in a chord share a single X/Y output. In the latter scenario, the shape can start over with each new note, or it can free-run. If it's free-running, you can play a line and get a different tone on each note, which is cool for adding nuance.

The playback speed can be synced to your host sequencer, and can go as long as 16 or 24 bars per loop, so a free-running curve can generate those long modulation curves familiar from electronica. The Speed knob is independent of the sync setting, so the actual speed can be faster or slower than the nominal length of the sync rate. The speed can also be modulated in real time.

Want more? How about editing? The modulation curve can be displayed on the X/Y surface, and you can click and drag to add new bits to it. There's room for improvement here, though. For instance, graphic editing doesn't add time to the length of the shape—there doesn't seem to be any way to do this—so if you add, say, a couple of new peaks or dips to the shape, the sound will zip through them quite rapidly. But most sound designers will probably get along fine using either manual recording or the preset circle and spiral shapes.

In Use

To see if Blade could cut it, I recorded a sketch in Image-Line FL Studio using 11 Blades, plus one Punch for the drums, and you can hear it online. The factory sound set is large and inspiring, but it doesn't have as many lead sounds as I'd like. A smooth chorused lead tone complemented my groove, so I settled for it. By layering two or three arpeggio patterns or shimmering pads, I got a couple of rich, animated soundscapes.

Adding a complex mod wheel response to the bass tone was easy, but doing a long, smooth fadeout to the final bass note using Blade's own envelope generator proved difficult, as its envelope times seem to be biased toward tight control of short times. I ended up using FL Studio's mixer automation for the fadeout.

Programming a few new presets was great fun, and I'm sure I've barely touched the surface of what Blade can do. I'll need a little more time to understand exactly how the controls in the Harmolator interact with one another, or how best to use the X/Y pad in sound design, but I'm sure it will be fun finding out.

I encountered only one minor bug in the version 1.0 release: Occasionally, when I exited the preset manager, the front panel wasn't redrawn properly. Going back to the preset manager and then exiting it again got rid of the glitch.

Conclusions

Blade is a deep and well-designed synthesizer, with more features than we've had space to cover in this review. Its sound palette has a wonderful and sometimes surprising character. The Harmolator additive oscillator can't detune individual harmonics, and that's a limitation, but the features in the Harmolator are both extensive and useful—and the modulation possibilities of the X/Y pad invite you to discover new kinds of sound.

No matter how you slice it, Blade is a worthy addition to Rob Papen's already impressive set of software instruments. ♫

Hear an original composition using 11 instances of Blade and one instance of Rob Papen's drum synth, Punch.

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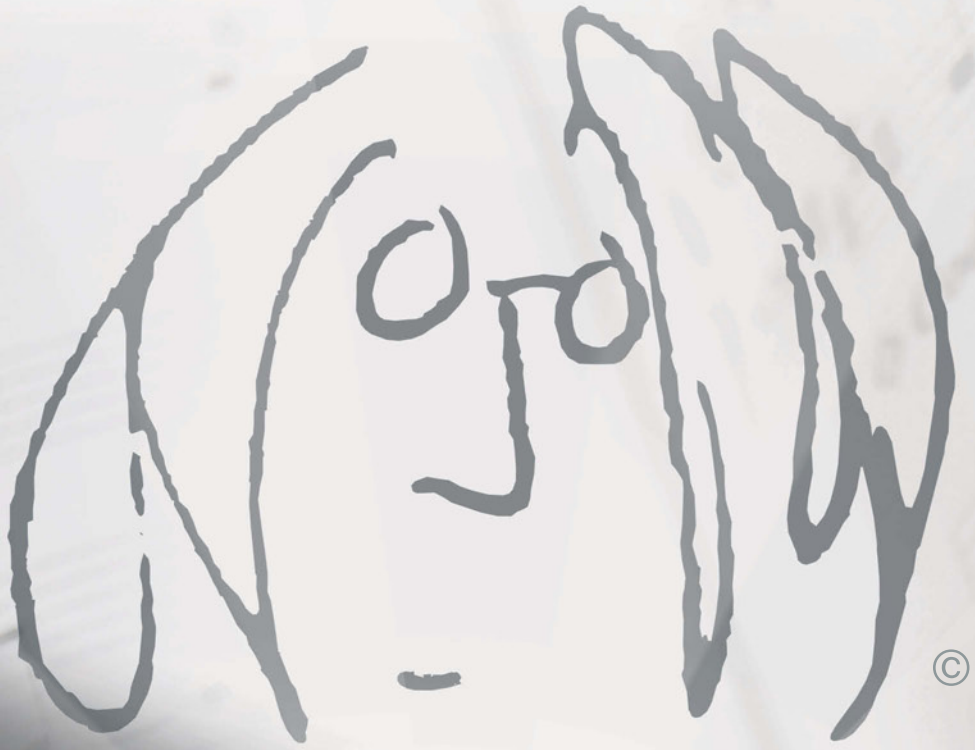

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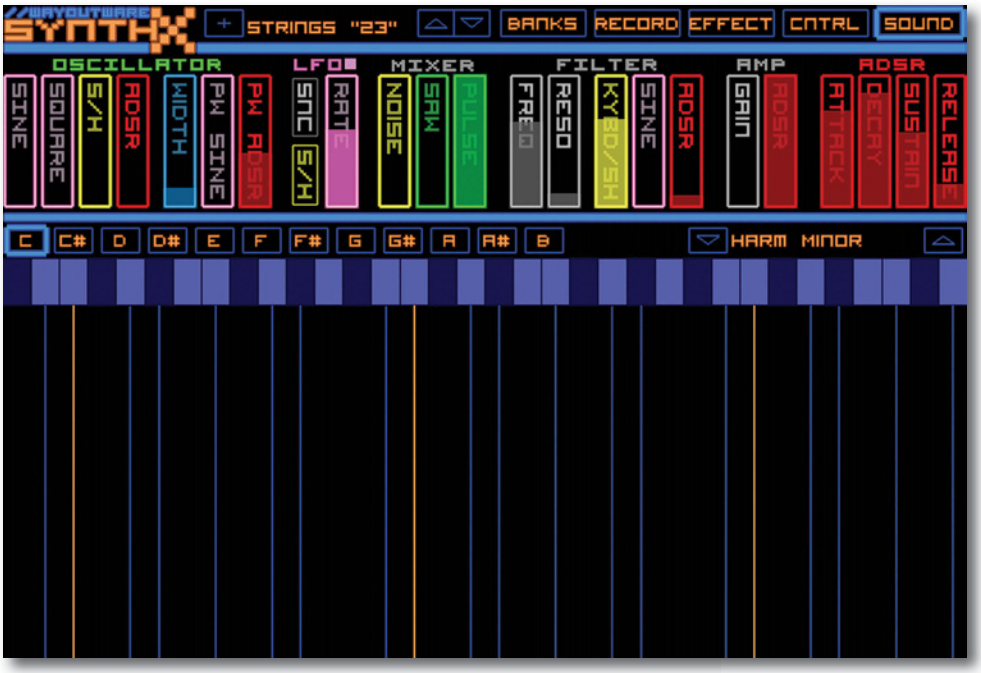

WAY OUT WARE SynthX

BY FRANCIS PRÈVE

IF YOU'RE AMASSING AN ARSENAL OF IPAD SYNTHS FOR LIVE AND STUDIO use, you're probably looking for a collection with *range*. This year, we've covered mainstream hits like Animoog, Addictive Synth, MorphWiz, and Korg iElectribe, but there are quite a few distinctive apps that are further off the well-worn path.

Case in point: Way Out Ware SynthX, which uses the keyboard-plus-X/Y approach to realtime performance that has become so popular with iOS instruments. What makes SynthX stand out from the pack is its incredibly retro sound. When I say retro, I don't mean analog-fueled '80s new wave or '90s digitalism, I mean '70s-era greasy cheese. Part of this comes from the preset design, but the majority of the sound comes from Way Out Ware's approach to modeling synths. After all, this is the company that nailed the ARP 2600 sound so well that Alan R. Pearlman himself gave his seal of approval.

Once you get past the user interface, which evokes a 1978 video game, the architecture comes into focus. A single oscillator feeds a resonant lowpass filter into an "amp." The oscillator waveforms are mixable, much like on a Roland SH-101, and there's also an LFO and an ADSR envelope that can each be routed to control pitch, filter cutoff, and volume in varying amounts simultaneously.

From there, an onboard effects section can be applied to either the synth output or—in a rather clever twist—the audio input of the iPad itself. The effects include distortion, flanger, chorus, and delay. Each of the effects includes its own little X/Y pad for adjusting the parameters Kaoss-style, which makes tweaking pretty darn intuitive.

The keyboard can be tuned to any key and a wide variety of scales including major, minor, blues, lydian, pentatonic major and minor, and a few others.

Most iPad synths include a system for recording your performances as audio so you can transfer them to your desktop or DAW, and SynthX is no exception. You can even record a new passage with the synth as one of your recordings plays for old-school bounce-o-mania.

All in all, SynthX is astonishingly good at a very specific type of '70s lead. Because of its straightforward implementation, its easy to get up and running with the synth and effects parameters. If you're down with the disco and prog rock era, SynthX is ten bucks well spent. ♫

Snap Judgment

PROS Straightforward set of synth parameters. Super retro sound. Cool visual display of waveform for each note you play. Built-in delay effects. Audio recording.

CONS No MIDI implementation. Whether you love or hate the distinctly '70s vibe is a matter of taste.

BOTTOM LINE A handy vintage-sounding addition to your iPad.

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Original audio examples.

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Create your state-of-the-art MOTU studio running Digital Performer and MachFive 3 on the latest MacBook Pro with studio-grade MOTU audio I/O and the latest advances in studio technology.

Apple Thunderbolt Display

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The fastest, most flexible I/O ever lets this display do things others simply can't. Thunderbolt I/O technology lets you move data between your devices and your computer with unprecedented speed — up to 20 times faster than USB 2.0 and up to 12 times faster than FireWire 800.

Run Digital Performer 8 as a 64-bit native application, along with 64-bit plug-ins and instruments like MachFive 3, on Mac OS X 10.7 (Lion).

Apple MacBook Pro

State-of-the-art processors. All-new graphics. Thunderbolt I/O. Three big leaps forward.

The 13-inch MacBook Pro now features a 2.4GHz Intel Core i5 processor or the fastest dual-core processor available — the 2.8GHz Intel Core i7. The new 15- and 17-inch models bring quad-core power to Digital Performer, MachFive 3 and your other instruments and plug-ins. The available 2.5GHz quad-core Intel Core i7 processor — with Turbo Boost speeds up to 3.6GHz and up to 8MB of shared L3 cache — enables these MacBook Pro models to run your MOTU studio up to twice as fast as their top-of-the-line predecessors.

MOTU MicroBook II

Studio-grade personal recording

Connect a premium mic, a guitar, and a keyboard, and start tracking with sound quality that rivals audio interfaces costing hundreds more. The amazing and compact MicroBook II delivers studio-grade features and sound.

MOTU

ToonTrack EZmix 2
Multi-effect mixing tool

Craft great mixes quickly with ToonTrack EZmix 2. Simply insert the EZmix 2 plug-in on any track in Digital Performer, and indicate what kind of signal you're processing: drums, vocals, guitar, or even the master fader. Then choose from a wide selection of pre-configured signal chains that apply an optimized, completed effects process for the selected material. Got an ambient vocal track? EZmix 2 can instantly give you a compressor, parametric EQ, tape delay with mix control, reverb with mix control, and finally a limiter already optimized for that "radio ready" sound. You'll love how much faster you achieve results!

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Genelec 8040A
Active bi-amplified studio monitor

With performance comparable to much larger systems, but in a compact package, the bi-amplified Genelec 8040A is ideal for use in MOTU studio situations where wide frequency response is needed but space is limited. Use the 8040A for nearfield monitoring in project/home studios, edit bays, broadcast and TV control rooms, and mobile production vehicles.

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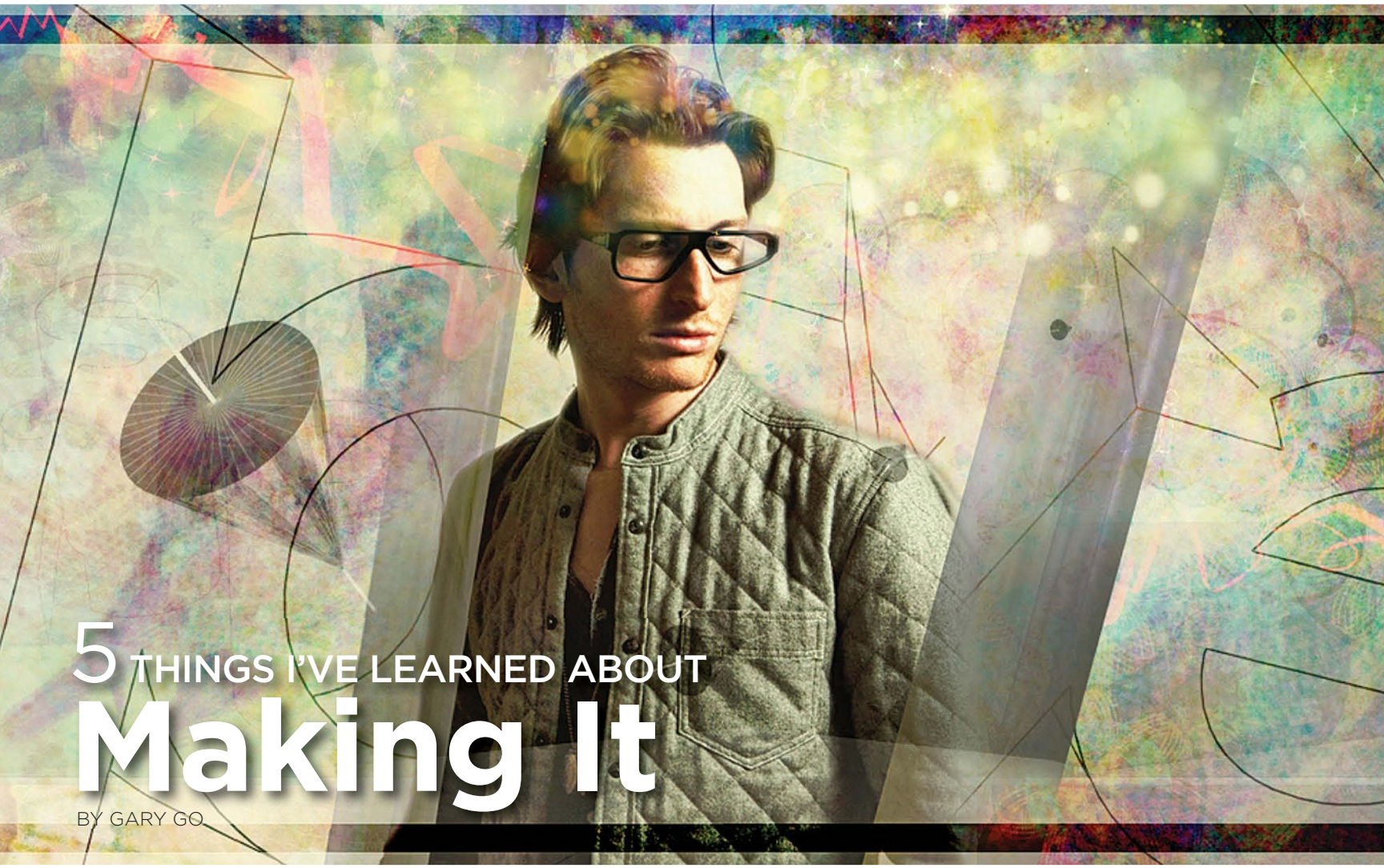

5 THINGS I'VE LEARNED ABOUT Making It

BY GARY GO

WHEN I WAS LEAVING HIGH SCHOOL AND ALL OF MY FRIENDS WERE GOING TO university, I had already secured a job at Zomba Records in London. It became my university. We had recording studios, a record label, a publisher, a library music company, and a gear rental company. It was there that I got an invaluable overview of the many aspects of the record industry, and where I gained the confidence to be a recording artist and songwriter signed to my own production and publishing company. One thing of which I'm certain is that there are no magic "secrets to success." There are just some very simple principles that take people to the top.

1. Work Hard and Love It

If your passion is real, wear it on your sleeve. It's nothing to be ashamed of. Real enthusiasm in any business is infectious and always shines. Most people go home when the bell rings. Stay late—word soon gets around. If you're excited about what you're doing, other people will be, too.

2. Find Out What You *Don't* Do

Having a go at projects in different styles is a great way of finding out what you do well—and what you don't. You may surprise yourself. Maybe something that didn't fit in your rock band gives you an edge on a hip-hop project. Don't get comfortable, and keep challenging yourself.

3. When in Doubt, Work More

It's not just art. It's art and *craft*. Having a great song idea may just be the beginning. You have to be prepared to perfect it, shape it, invest in it. No one will—or should—believe in something you've created more than you do.

4. Collaborate

Collaboration can be a great way to get a window into the process of other songwriters. Make an effort to seek out artists who are better and more successful than you are. It's a great way to learn, and it'll be your enthusiasm (see number 1) that can open those doors.

5. Actually Do It

It's easy to read Walt Whitman poetry over a latté because you're a writer. It's easy to go to shows for inspiration because you're a writer. It's easy to go on a "research trip" because you're a writer. Know what's hard? *Writing*. Face the blank page—or DAW arrange window—but don't make friends with it. The blank page is your nemesis. Writing badly is better than writing nothing—and you don't need to play the bad stuff for anybody. Get used to finishing. ♫

CALVIN MÜLLER

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